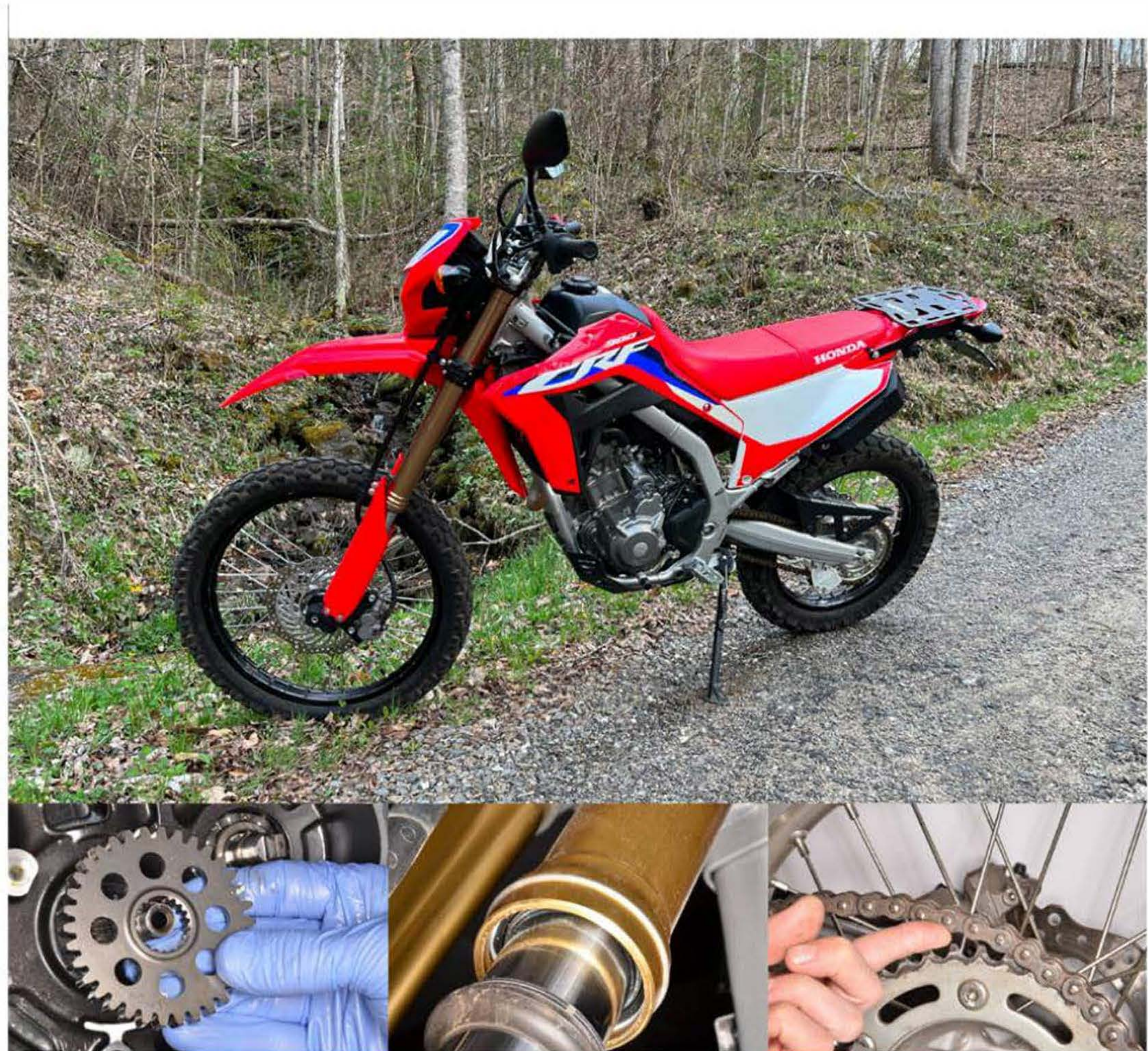


# ***CYCLEPEDIA PRESS LLC***

## ***Service Manual***

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### ***2021 -2024 Honda CRF300L/RL Rally***





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## - Honda CRF300L Service Manual

Handlebar

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

### Suggested Tools and Supplies

8 mm Socket  
10 mm Socket  
12 mm Socket  
10 mm Wrench  
#2 Phillips screwdriver  
Ratchet  
Torque Wrench  
Nitrile Gloves  
Safety Glasses

## Removal

Remove or perform the following:

Mirrors <sup>[1]</sup>

Clutch Inspection <sup>[2]</sup> (disconnect the cable at the lever)

Handguards <sup>[3]</sup> (if equipped)

Front Master Cylinder <sup>[4]</sup> (remove and support aside)



Note the locations of wire ties on the harness at both sides of the bars then remove the ties to free the wiring.





Unplug the two clutch switch connectors from the terminals.



Remove the clutch perch bolts with an 8 mm socket, remove the perch lever assembly from the handlebar.





Unthread the clutch cable adjuster and lock nut from the perch.



Using a #2 Phillips screwdriver, remove the screw that secures the clutch switch.



Remove the clutch switch.

Note: The next few steps are for models where the levers are still attached to the perch and were not removed with the handguard.



Hold the clutch lever pivot bolt with a 10 mm wrench.





Remove the clutch lever nut with a 10 mm socket.



Remove the pivot bolt with a 10 mm socket and separate the clutch lever from the perch.



Remove the two screws from the back of the left switch housing using a #2 Phillips screwdriver.



Separate the halves of the switch housing and remove it from the handlebar. Position it aside with the wiring intact.





Remove the two screws from the right switch housing using a #2 Phillips screwdriver.



Separate the halves of the switch housing.



Free the throttle cables from the throttle drum and position the switch housing aside.



Slide the throttle grip assembly from the end of the bar.





If you plan to replace the grip you can slice it lengthwise with a razor blade and peel it off. To remove the grip without cutting use a screwdriver to open a gap between the grip and the handlebar. Spray in contact cleaner to break up the grip cement. Use compressed air to expand the grip so it can be easily slid off the end of the handlebar.



Loosen and remove the four pinch bolts with a 12 mm socket.



Support the bar and remove the upper clamps.



Remove the handlebar from the upper triple tree.

## **Installation**





Position the handlebar to the lower clamps in the upper triple tree.



Install the upper clamps with the dimples facing forward and lightly thread the bolts.



Align the punch mark on the handlebar with the top edge of the lower clamp.



Tighten the handlebar clamp bolts securely with a 12 mm socket. Start with the front bolts first, then move to the rear bolts, this will leave a small gap at the rear of the clamps as shown.





If removed, install the left grip. Wipe down the area with a brake or parts cleaner that will dry without leaving a residue. When you are sure the area is dry apply grip cement to the bar or tube. If installing an OEM grip, align the projection on the inside end of the grip with the punch mark on top of the handlebar.

Note: If using Honda Grip Cement apply it evenly to both surfaces being joined and wait 3-5 minutes before sliding the grip into position. Allow the cement to cure for at least an hour before operating the motorcycle.



Slide the throttle grip on the bar and install the cables. Apply a light coating of grease to the rolling surface of the throttle drum flange, then connect the cables to the drum.



Install the throttle cable half of the right switch housing aligning the post in the housing with the hole in the bar.



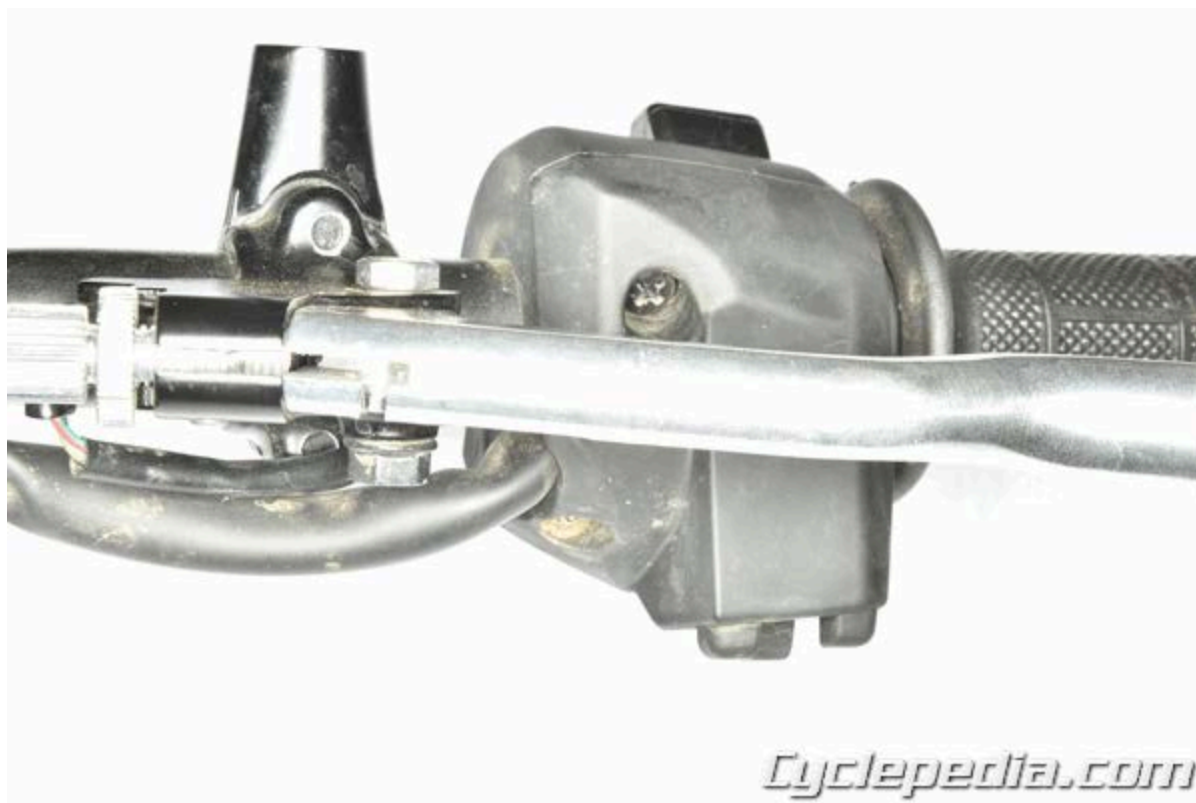
Then align and install the other half of the housing and tighten the two switch screws to specification using a #2 Phillips driver.



**Right handlebar switch screw:** 2.5 N-m (0.3 kgf-m, 1.8 ft-lb)



Install the left switch housing in the same manner aligning the post in the housing with the hole in the bar.



Install the two housing switch screws and tighten to specification using a #2 Phillips driver.

**Left handlebar switch screw:** 2.5 N-m (0.3 kgf-m, 1.8 ft-lb)

Note: The next few steps are for models without handguards.



Apply a light coat of grease to the sliding area of the clutch pivot bolt and lever. Install the lever to the perch, install the bolt and tighten to specification.

**Clutch lever pivot bolt:** 1.0 N-m (0.1 kgf-m, 0.7 ft-lb)



Install the clutch lever pivot nut and tighten to specification.



**Clutch lever pivot nut:** 5.9 N-m (0.6 kgf-m, 4.4 ft-lb)



If removed, install the clutch switch and tighten the retaining screw securely using a #2 Phillips screwdriver.



If removed, thread the clutch cable adjuster and lock nut onto the clutch lever.



Install the clutch perch to the handlebar. For models with handguards make sure the stay is in position too (See the [Handguards](#) <sup>[3]</sup> topic for more information).



Make sure the edge of the perch aligns with the punch mark on top of the handlebar.





Tighten the clamp bolts securely using an 8 mm socket, starting with the top bolt.



Plug the clutch switch connectors back onto the switch spades.



Secure the wiring for the switch housings on either side of the handlebar with two wire ties in the positions noted before removal.

Install the following components:

Front Master Cylinder <sup>[4]</sup> (remove and support aside)

Handguards <sup>[3]</sup> (if equipped)

Clutch Inspection <sup>[2]</sup> (attach the cable and adjust as necessary)

Throttle <sup>[5]</sup> (check/adjust free play)

Mirrors <sup>[1]</sup>

URLs in this post:

[1] Mirrors: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/mirrors/>

[2] Clutch Inspection: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/clutch-adjustment/>

[3] Handguards: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/handguard/>

[4] Front Master Cylinder: <https://www.cyclepedia.com/manuals/online/cpp-323/front-brake/front-brake-master-cylinder/>

[5] Throttle: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/throttle-free-play/>

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## - Honda CRF300L Service Manual

### Handguards

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### **Suggested Tools and Supplies**

5 mm Hex Driver  
8 mm Socket  
10 mm Wrench and Socket  
Ratchet  
Torque Wrench  
Phillips Screwdriver  
Nitrile Gloves  
Safety Glasses



All Rally models and some standard models are equipped with OEM handguards which are easily removed/installed for replacement or access to other components. The guards are secured by the clutch/brake lever pivot bolts respectively (though the clutch side also uses a separate stay).

### **Right (Brake) Side**

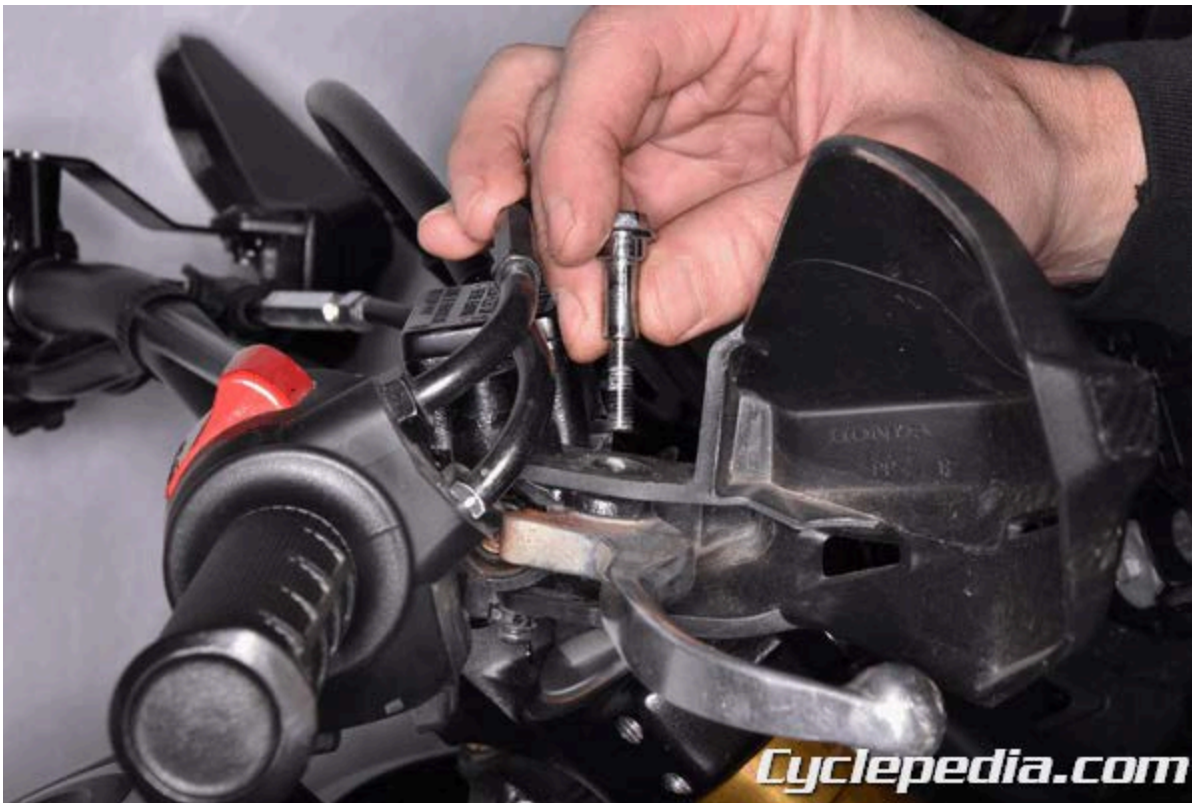


As noted the brake side hand guard is secured by the pivot bolt and nut.



Hold the bolt from turning using a 10 mm wrench and loosen the nut using a 10 mm socket. Remove the nut and collar.

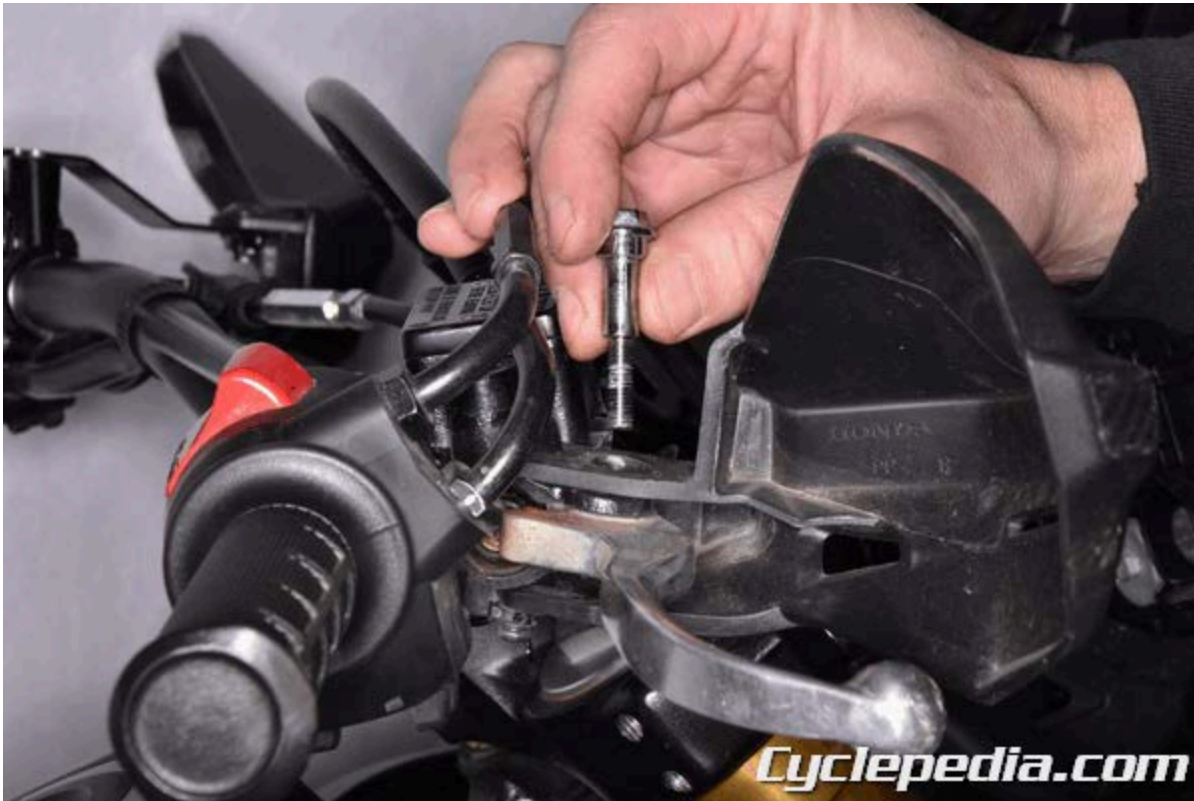




Loosen and remove the brake pivot bolt using a 10 mm socket.



Remove the lever and guard from the master cylinder and handlebar.



During installation apply grease to the sliding surface of the brake lever pivot bolt, then install it through the guard and lever. Tighten the brake lever pivot bolt to specification using a 10 mm socket.

**Brake lever pivot bolt (apply grease to sliding surface):** 1.0 N-m (0.1 kgf-m, 0.7 ft-lb)



Install the collar and pivot nut, then hold the bolt from turning using a 10 mm wrench and tighten the pivot nut to specification using a 10 mm socket.

**Brake lever pivot nut:** 5.9 N-m (0.6 kgf-m, 4.4 ft-lb)



## Left (Clutch) Side



On the clutch side the guard is secured by the clutch lever pivot bolt and a separate stay that attaches to the perch.



If desired to free the stay itself, remove the upper clutch lever perch (holder) mounting bolt using an 8 mm socket.



Remove the bolt securing the guard to the stay using a 5 mm hex driver.



Remove the guard stay.





As noted the hand guard is also secured by the pivot bolt and nut.



Hold the bolt from turning using a 10 mm wrench and loosen the nut using a 10 mm socket. Remove the nut and collar.



Angle the guard off the lever pivot bolt and remove it from the motorcycle.



During installation angle the guard onto the perch and over the bottom of the pivot bolt. Install the collar and clutch lever pivot nut, then hold the bolt from turning using a 10 mm wrench and tighten the pivot nut to specification using a 10 mm socket.

**Clutch lever pivot nut:** 5.9 N-m (0.6 kgf-m, 4.4 ft-lb)





If the stay was removed, position it to the perch and guard.



Install the mounting bolt that secures the guard to the stay and tighten securely using a 5 mm hex driver.



If the stay was removed, loosen the lower clutch perch (holder) mounting bolt and make sure the edge of the perch aligns with the punch mark on top of the handlebar.



Tighten the clutch perch clamp bolts securely using an 8 mm socket, starting with the top bolt.  
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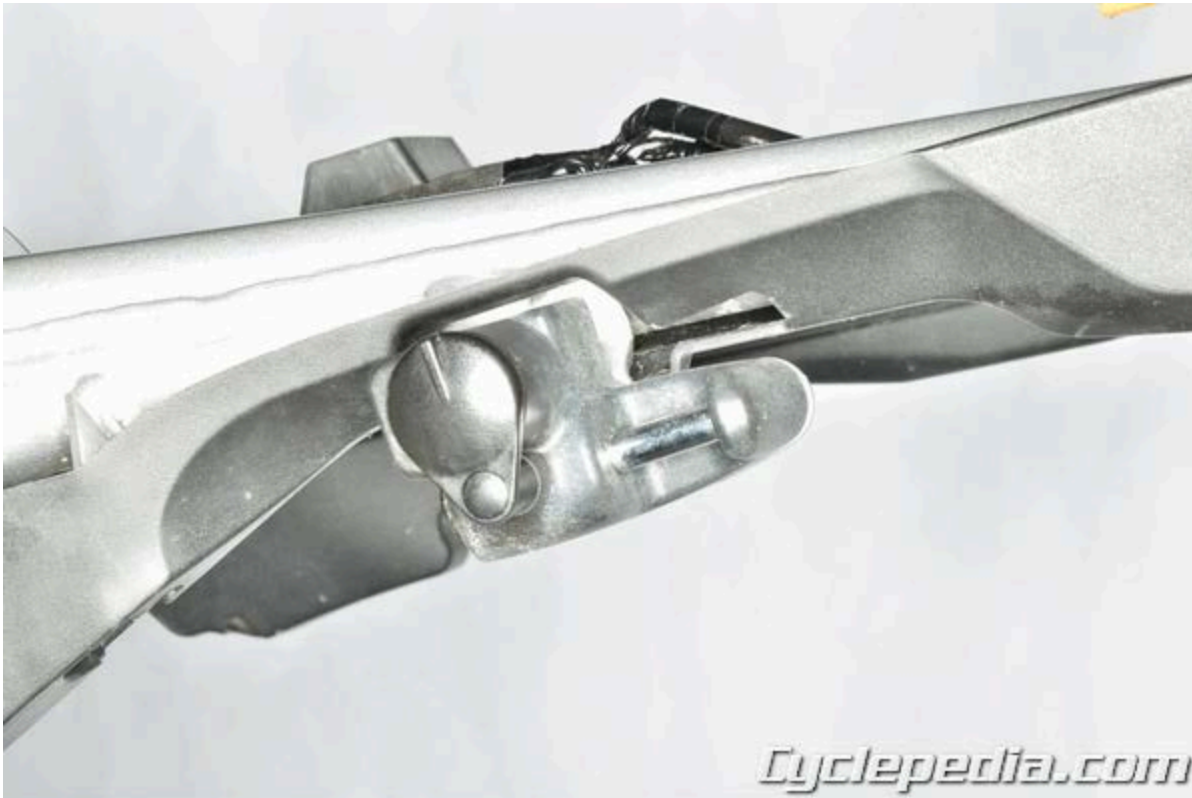
## - Honda CRF300L Service Manual

### Helmet Holder

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### **Suggested Tools and Supplies**

Chisel and Hammer  
Dremel and Cutting Wheel or Hacksaw  
Flat Head Screwdriver  
Nitrile Gloves  
Safety Glasses



A helmet holder is mounted to the frame on the rear left side of the motorcycle just behind the tool box.

## **Removal**



The helmet holder is secured by 2 tamper resistant bolts.



It may be possible to loosen the bolts using a hammer and chisel.





If a chisel won't budge them, cut a slot into the head using a Dremel and cutting wheel.



Be careful not to take too much metal from the screw head. Cut a slot that will accept a flat head screwdriver.



Remove the screws with a driver.



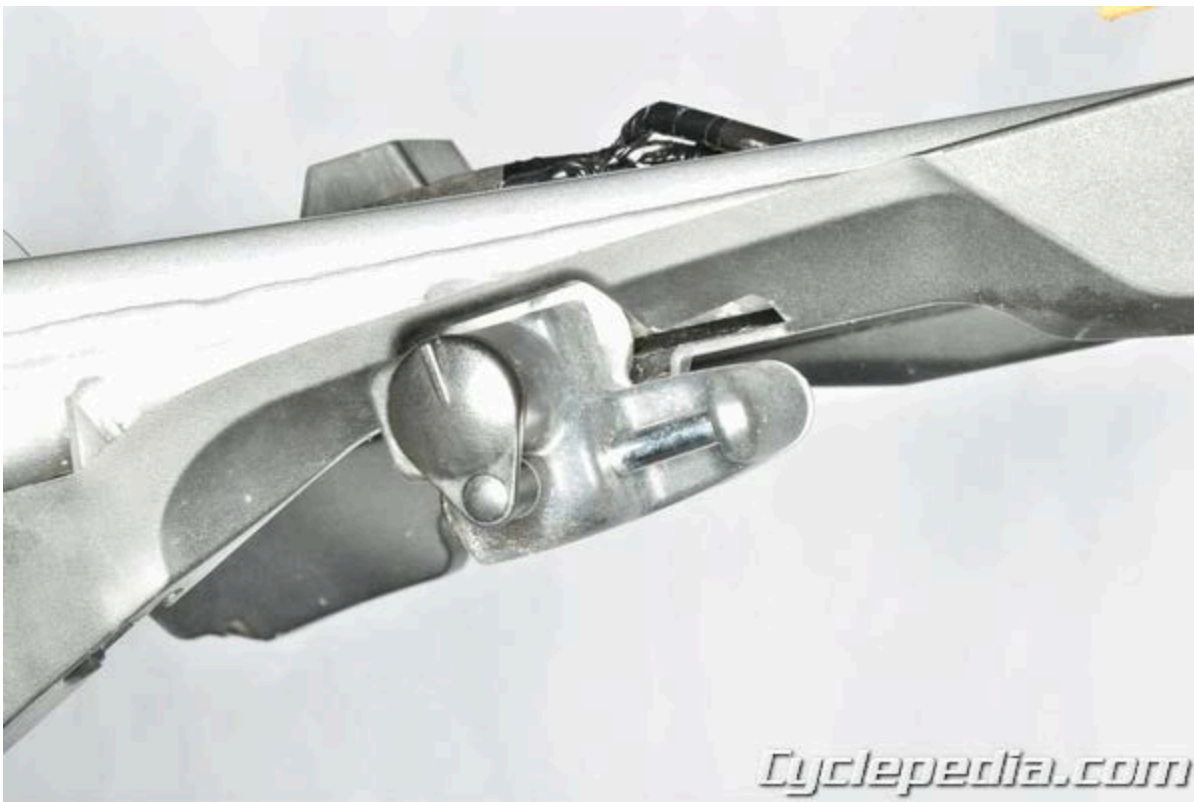
Then remove the holder from the frame tab.

## **Installation**





Position the holder to the frame tab and install new mounting screws.



Tighten the screws securely.

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## Meter Mount

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

### Suggested Tools and Supplies

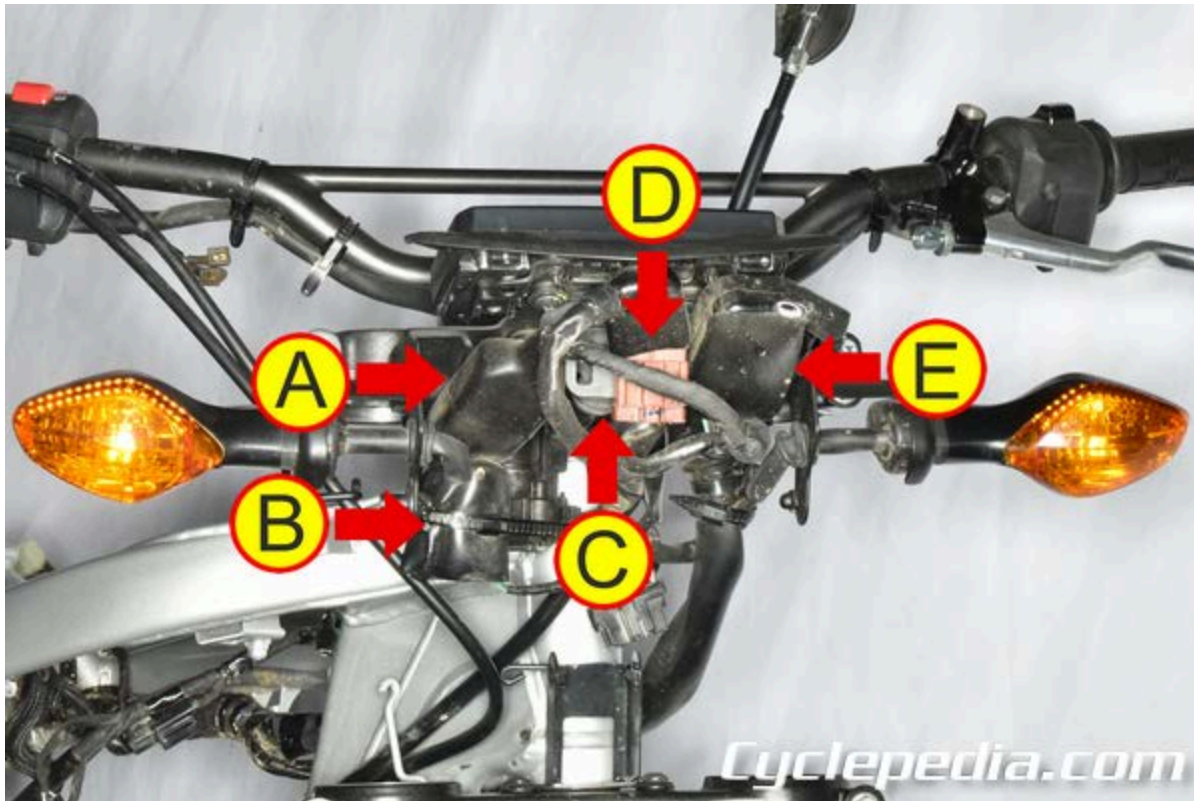
6 mm Hex Driver  
12 mm Socket  
Ratchet  
Nitrile Gloves  
Safety Glasses

## Mount Removal on L/LA Models

The meter (speedometer), the front turn signals/position lights, and the headlight cowl are secured to a common mount assembly. Though the meter or turn signals are easily removed separately if service is required to any one component, the entire mount assembly (complete with turn signals and meter) can be removed for access to other components like the steering head.

This procedure removes the mount and all affixed components as a complete assembly. See the [Meter](#) <sup>[1]</sup> or [Lights](#) <sup>[2]</sup> topics to remove or otherwise service them separately without removing the mount from the motorcycle.

Remove the headlight cowl for access. See Headlight Cowl/Visor in the [Bodywork](#) <sup>[3]</sup> topic for more information.



With the headlight cowl out of the way there is access to the following connectors:

- A:** Right handlebar switch
- B:** Turn signals
- C:** Meter
- D:** Ignition switch
- E:** Left handlebar switch





Unplug the ignition switch wiring.

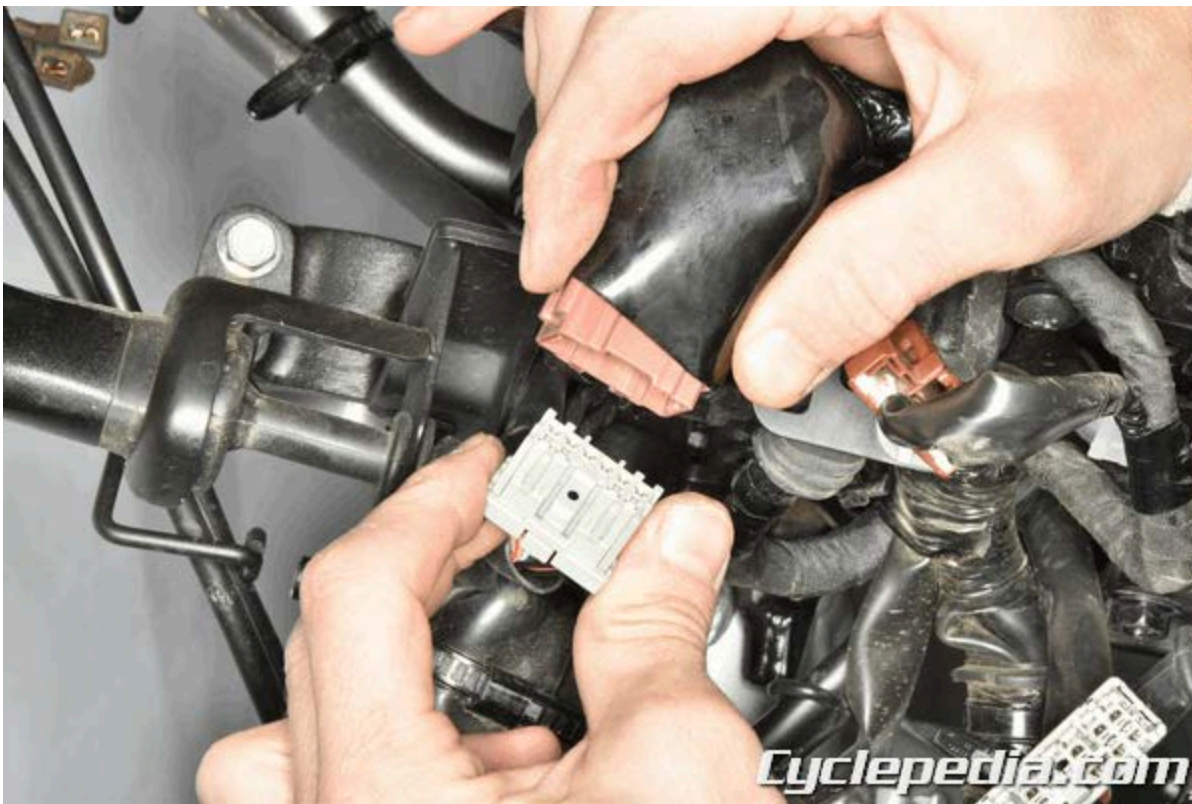


Remove the connector from the stay.





Pull the rubber boot up off the left handlebar switch connector. Unplug the switch connector.



Pull the rubber boot up off the right handlebar switch connector. Unplug the switch connector.





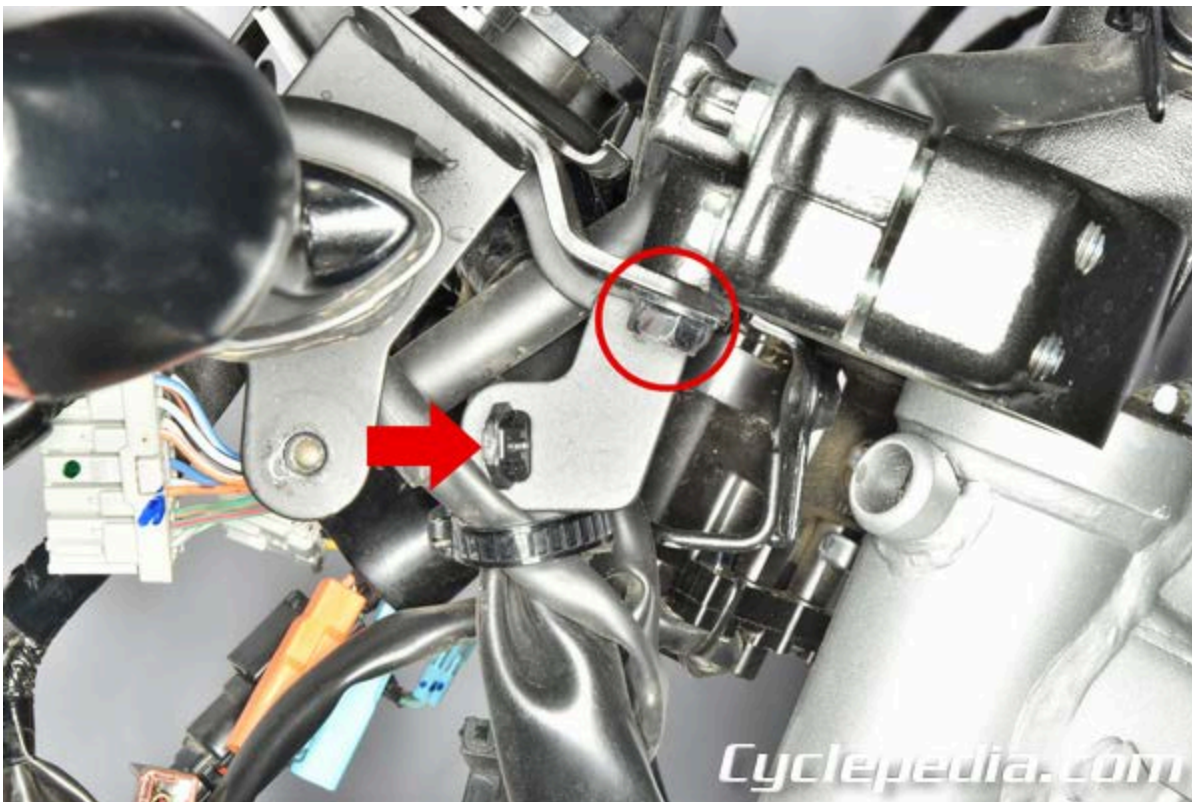
Open the wire band securing the turn signal wiring in the rubber boot.



Pull the turn signal connectors out of the boot and unplug them.



Free the control cables from the stays.



Free any wiring harness stays from the mount (arrow). Note the right mount bolt (circle).





Remove the two mount bolts (left bolt shown) using a 12 mm socket.



Lift up on the meter and mount assembly for access to the wiring.





Pull back the rubber boot and unplug the meter connector, then remove the mount assembly from the chassis, being careful to free any remaining cables from the wire loom.

If desired the meter or the turn signals can be separated from the mount for service or replacement at this point. See the [Meter](#) <sup>[1]</sup> or [Lights](#) <sup>[2]</sup> topics for more information.

## Mount Installation on L/LA Models





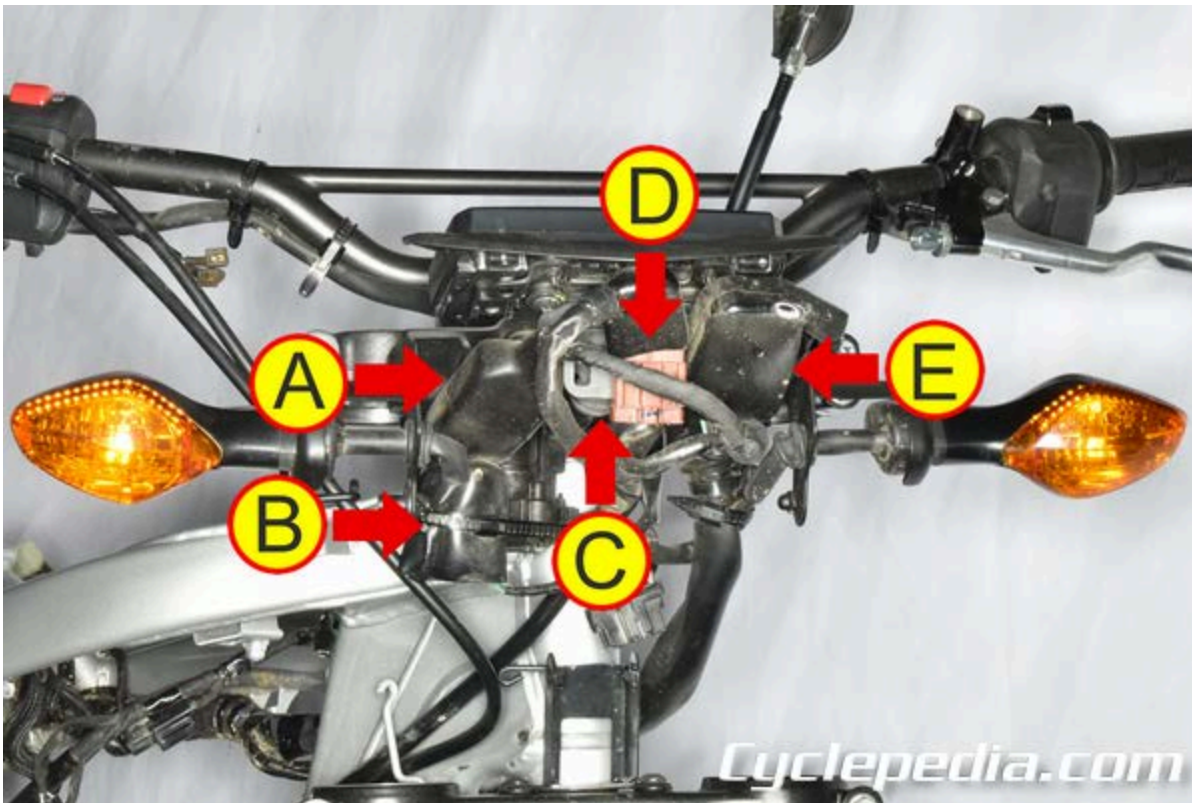
Hold the mount over the steering head and reconnect the meter wiring. Secure the boot over the connector.



Align the meter mount to the upper triple tree and install the two mounting bolts. Tighten the bolts securely using a 12 mm socket.



Route the control cables through the guides.



Reconnect the wiring connectors and secure them with the stays or bands as applicable:

- A:** Right handlebar switch
- B:** Turn signals
- C:** Meter
- D:** Ignition switch
- E:** Left handlebar switch

Install the headlight cowl. See the [Headlight Cowl](#) <sup>[3]</sup> topic for more information.

## Mount Removal on LR/LRA Models

The meter (speedometer), the front turn signals/position lights, and the headlight cowl are secured to a common mount assembly. Each of the main components mounted to the stay can be serviced separately. It may be possible to remove most of the components still attached to the mount, but only if there is sufficient access to unplug and free the harnesses run through the mount.

On our LR project bike we found it easier to first remove each of these components, then unbolt and remove the mount.



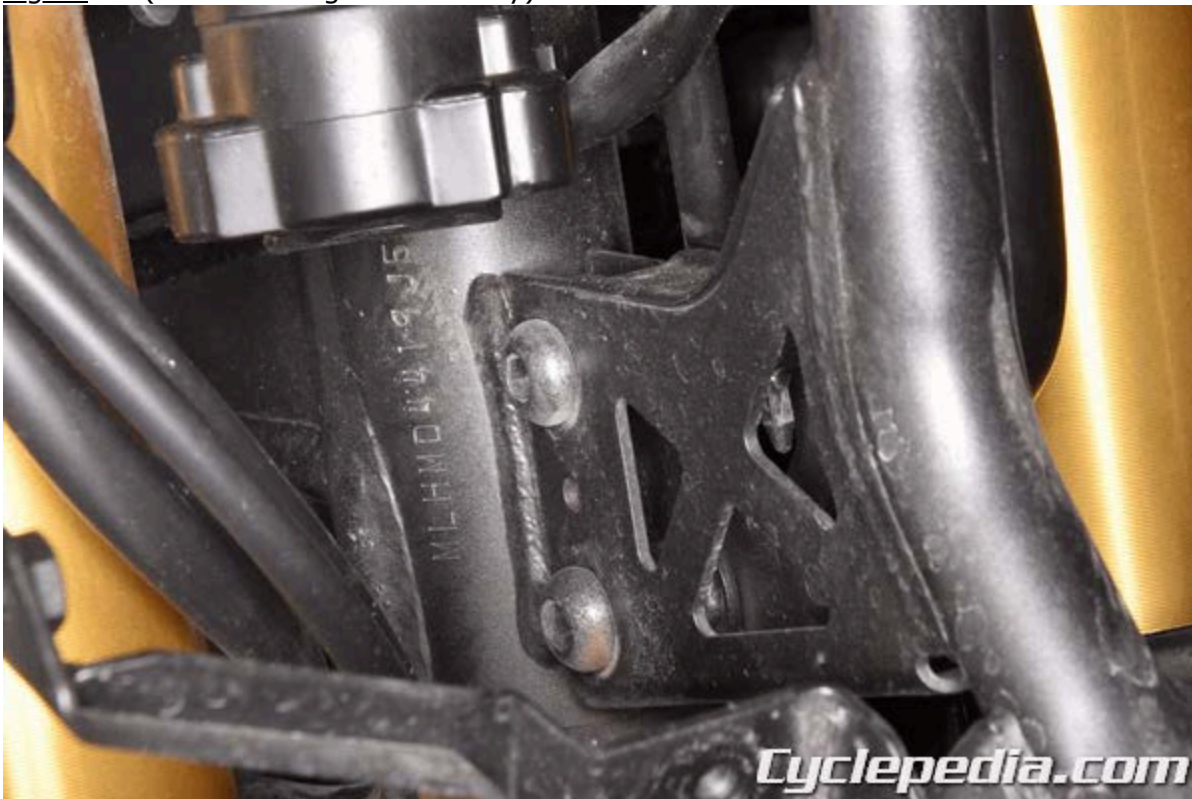


Remove the following for access and free the wiring harnesses from the mount:

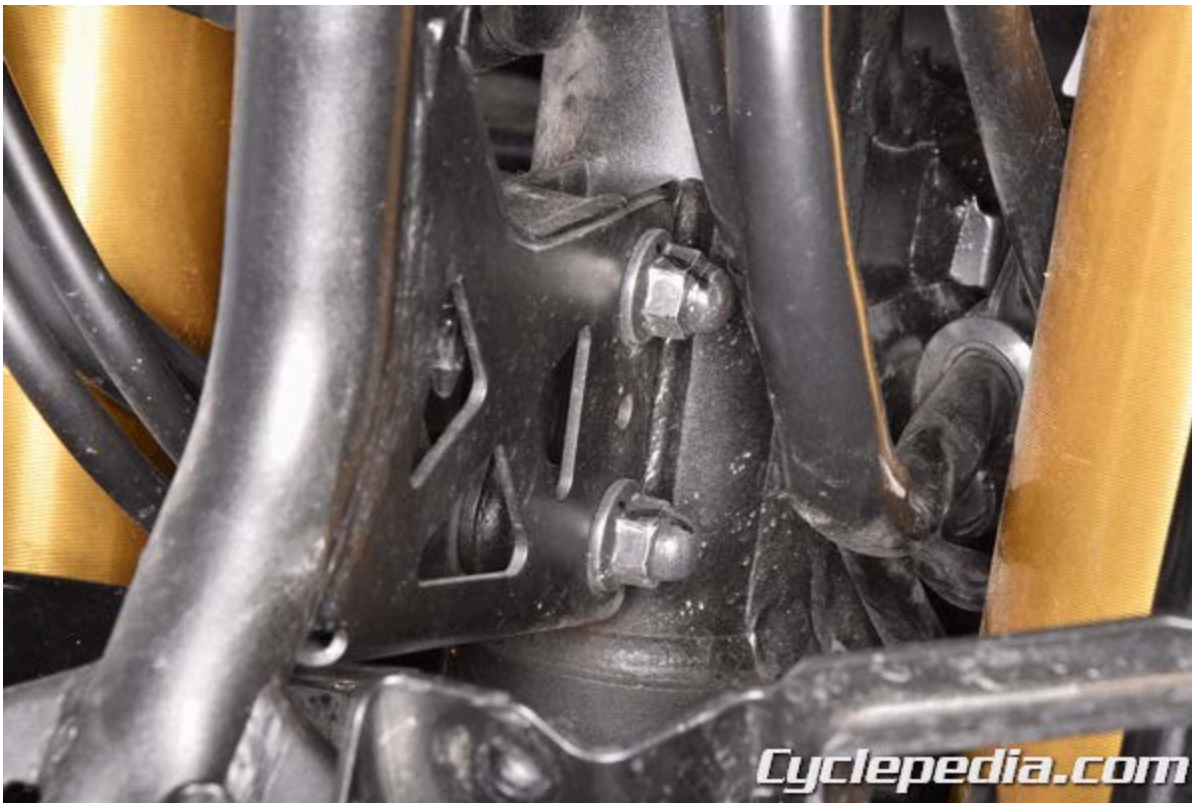
Bodywork <sup>[3]</sup> (windscreen/headlight cowl)

Meter <sup>[1]</sup>

Lights <sup>[2]</sup> (front turn signal assembly)



Hold the mount bolts from turning using a 6 mm hex driver.



Remove the two mounting flange nuts using a 12 mm socket.



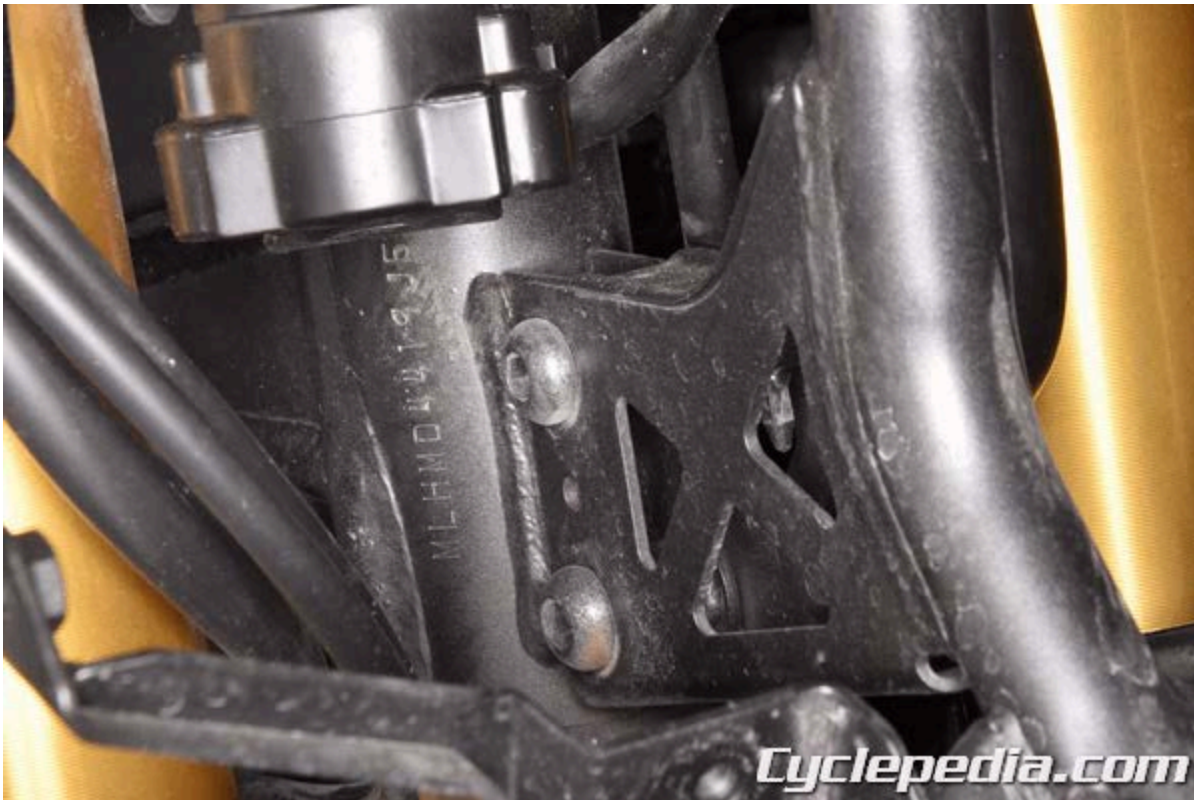
Remove the two mounting bolts and free the mount from the steering head.

## **Mount Installation on LR/LRA Models**

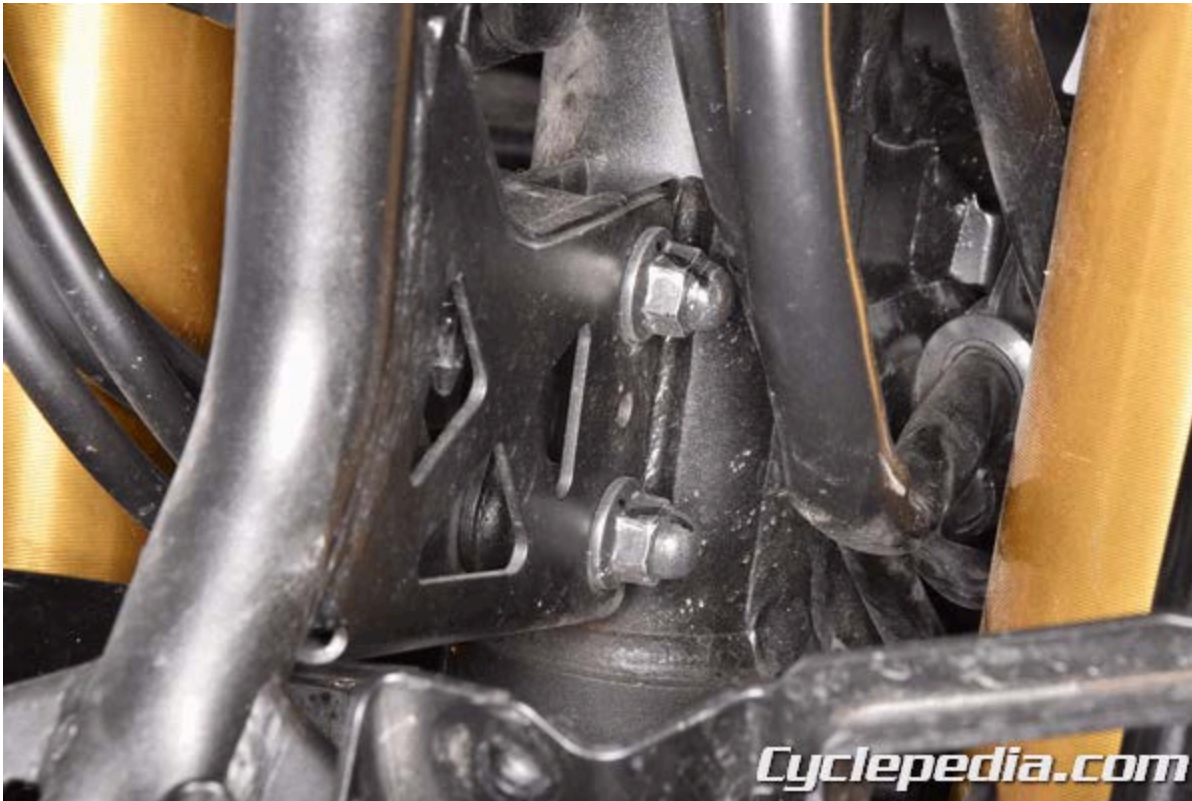




Position the meter mount bracket to the steering head and insert the bolts from the right side of the steering head to hold it in place.



Hold the bolts from turning using a 6 mm hex driver.



Install the mounting flange nuts to the bolts and tighten them securely with a 12 mm socket.

**Meter Mounting Nuts:** 27 N-m (2.8 kgf-m, 20 lb-ft)

Route the harnesses back into place and install the following:

Meter <sup>[1]</sup>

Lights <sup>[2]</sup> (front turn signal assembly)

Bodywork <sup>[3]</sup> (windscreen/headlight cowl)

URLs in this post:

[1] Meter: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/multi-function-display/>

[2] Lights: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/lights-2/>

[3] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

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## - Honda CRF300L Service Manual

### Mirrors

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### **Suggested Tools and Supplies**

14 mm Wrench (two)

Nitrile Gloves

Safety Glasses



The mirrors are installed through a left-hand thread lock nut which is used for adjustment into a 10 mm thread adaptor bolt, that is in turn threaded into the handlebar perch.



Pull the rubber boot up to expose the lock nut (top) and the adaptor bolt (bottom).



Use a 14 mm open end wrench to loosen the adaptor bolt, then unthread the mirror and adaptor assembly from the handlebar perch.

Note: On the left side of a Rally models (or standard models with handguards) there should be a washer between the adaptor bolt and the perch/guard bracket.





During installation position the mirror assembly to the perch and tighten the adjuster bolt to specification using a 17 mm wrench.

**Rearview mirror adaptor bolt:** 20 N-m (2.0 kgf-m, 15 ft-lb)

To adjust the mirror hold the adaptor bolt from turning using a 17 mm wrench and use a second wrench to loosen the lock nut. However as the lock nut has left-hand threads that means turning it **clockwise** to loosen. Reposition the mirror stem as needed for proper adjustment, then again hold the adaptor bolt from turning with one wrench and tighten the lock nut **counterclockwise** to specification using a second wrench.

**Rearview mirror lock nut (left-hand threads):** 20 N-m (2.0 kgf-m, 15 ft-lb)



Pull the rubber cover back down over the locknut and adaptor once adjusted properly.  
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## - Honda CRF300L Service Manual

Seat

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

### **Suggested Tools and Supplies**

6 mm Hex Driver

Ratchet

Torque Wrench

Nitrile Gloves

Safety Glasses

## **Removal**

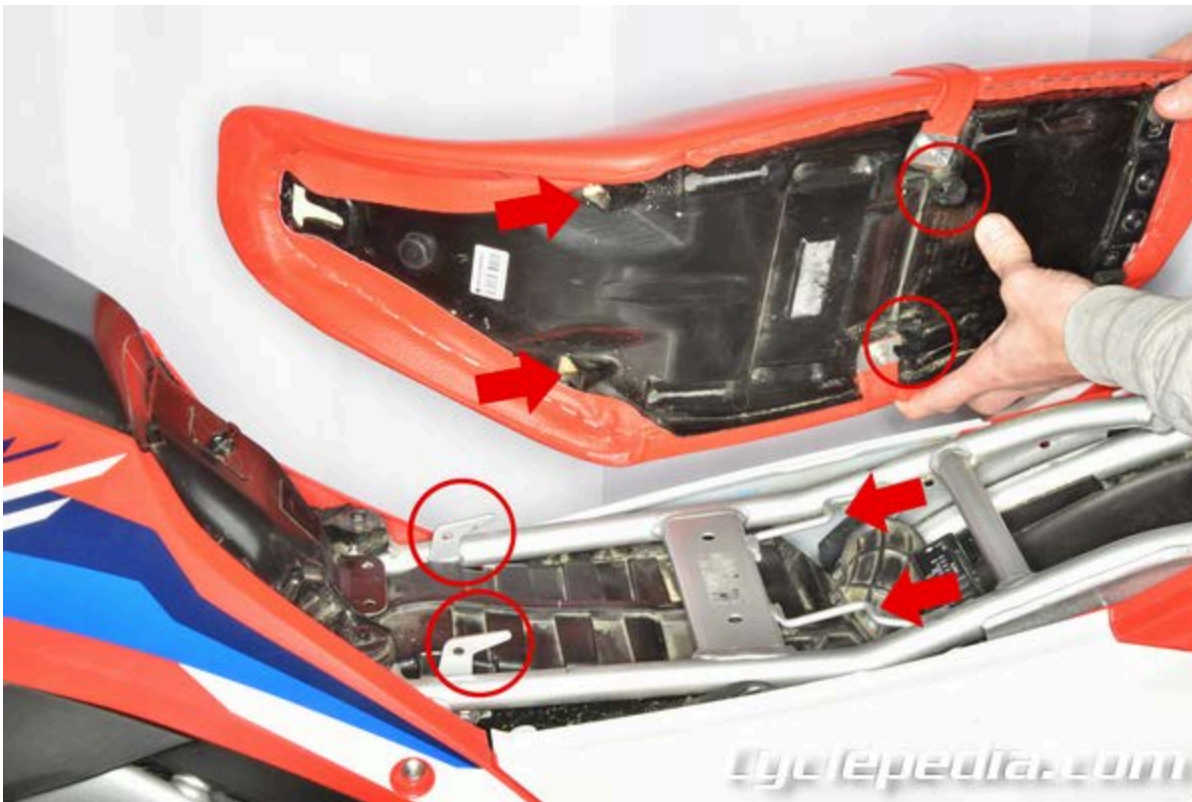


The seat is secured at the rear by two hook bolts (one on each side). Remove the bolts and collars using a 6 mm hex wrench.



Slide the seat back and then lift upward to free it from the hooks and remove it from the motorcycle.

## Installation



To install the seat align the hooks (circles) on the bottom rear of the seat and the front of the frame with the mounting tabs. The hooks on the seat slide under the wire tabs on the frame (lower arrows) while the hooks on the frame slide into the hooks on the seat (upper arrows).





Once all the hooks are aligned lower the seat into position as it is slid forward to engage the hooks/tabs.



Align the bolt holes, then install the hook bolts and collars to secure the seat.



Tighten the hook bolts to specification using a 6 mm hex wrench.

**Hook bolt (seat/rear cowl):** 21 N-m (2.1 kgf-m, 15 ft-lb)

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## - Honda CRF300L Service Manual

### Side Stand

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### Suggested Tools and Supplies

14 mm Socket and Wrench

17 mm Socket

Ratchet

Torque Wrench

Nitrile Gloves

Safety Glasses

### Inspection



Support the motorcycle upright on a stand. Check the side stand for smooth operation and verify that the spring holds it up firmly, lubricate the side stand pivot if it is squeaky or binds. Start the engine in neutral with the side stand up, pull in the clutch and place the motorcycle in gear. Place the side stand down, the engine should cut off. If the engine continues to run in gear with the side stand down inspect the side stand switch for proper operation and discontinue use of the motorcycle until fixed. See the [Switches](#) <sup>[1]</sup> topic for more information.

### Removal



Support the motorcycle upright on a stand and retract the side stand.



Remove the side stand switch. See the [Switches](#) <sup>[1]</sup> topic for more information.





Remove the return spring from the side stand with a spring puller.



Free the spring from the chassis tab and inspect them for fatigue. Replace as necessary.



Hold the pivot bolt from turning using a 14 mm wrench.



Remove the side stand pivot nut using a 17 mm socket.





Use a 14 mm wrench or socket to loosen and unthread the pivot bolt. Then remove bolt.



Remove the side stand.

## **Installation**

Apply a light coating of grease to the sliding surfaces of the stand and pivot bolt.



Install the stand to the chassis, then install and tighten the pivot bolt to specification using a 14 mm socket

**Side stand pivot bolt:** 10 N-m (1.0 kgf-m, 7.0 ft-lb)



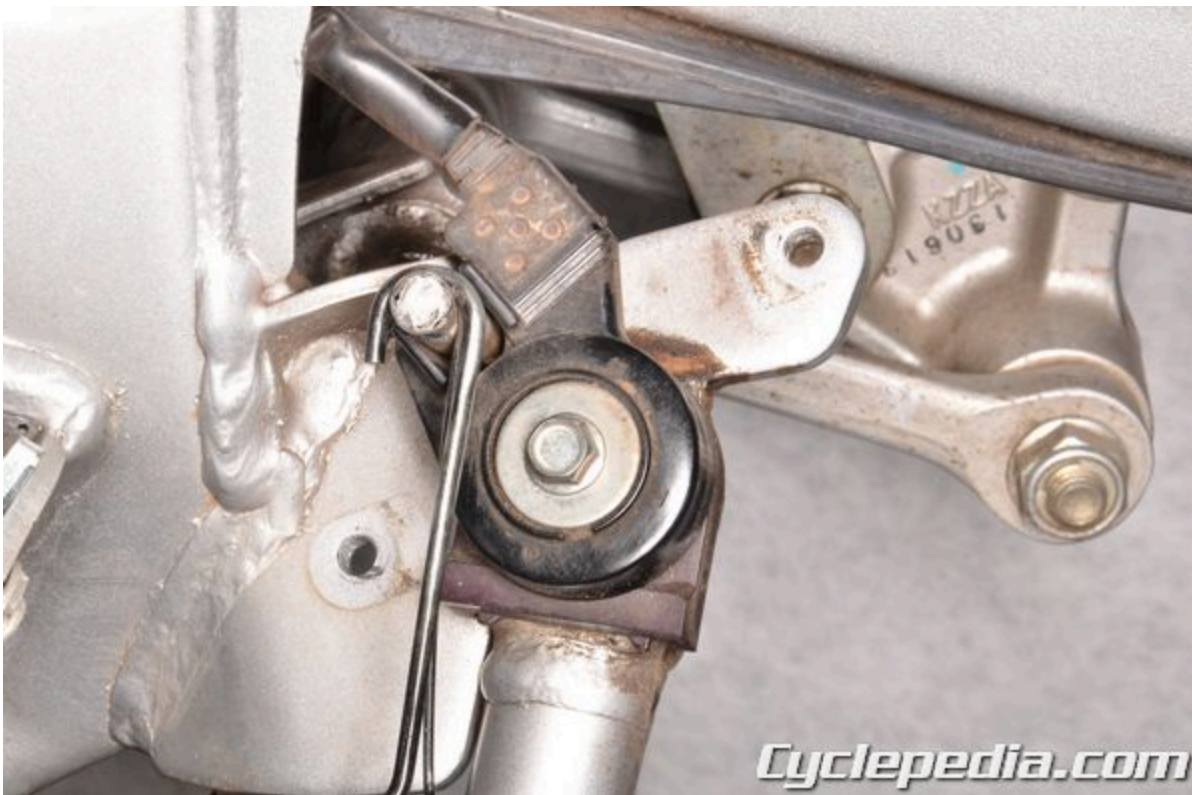
Hold the pivot bolt from turning using a 14 mm wrench, then thread the lock nut into position and tighten it to specification using a 17 mm socket.

**Side stand pivot nut (self-lock nut):** 30 N-m (3.1 kgf-m, 22 ft-lb)





Install the return and sub spring by hooking it to the chassis and stand.



Install the side stand switch using a new bolt. See the Switches <sup>[1]</sup> topic for more information. URLs in this post:

[1] Switches: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/switches/>

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## - Honda CRF300L Service Manual

### Coolant

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

**SAFETY FIRST: Antifreeze is highly toxic and can kill children, pets or animals if consumed. Do not leave coolant where children or animals can get to it.**

### Suggested Tools and Supplies

8 mm Socket  
10 mm Socket  
Ratchet  
Drain Pan  
Nitrile Gloves  
Safety Glasses

It is important to maintain the proper type and level of coolant. Doing so will not only increase the life of your engine but will provide maximum performance. The coolant level should be at the base of the filler neck.

Before checking the coolant in the radiator or opening the cooling system (other than the reserve tank) make sure the engine is cold. Failure to do so can result in serious burns.

**SAFETY FIRST: Never remove the radiator cap when the engine is hot.**

### Coolant Capacity

**Replacement:** 0.77 liters (0.81 US qt, 0.68 Imp qt)

**After disassembly:** 0.86 liter (0.91 US qt, 0.76 Imp qt)

**Recommended antifreeze:** Pro Honda HP Coolant or an equivalent high quality ethylene glycol antifreeze containing silicate-free corrosion inhibitors

**Standard coolant concentration:** 1:1 (mixture with distilled water)

### Coolant Draining

**Warning: Never remove the radiator cap when the engine is warm. The engine should be cold before removing the cap to prevent burns.**



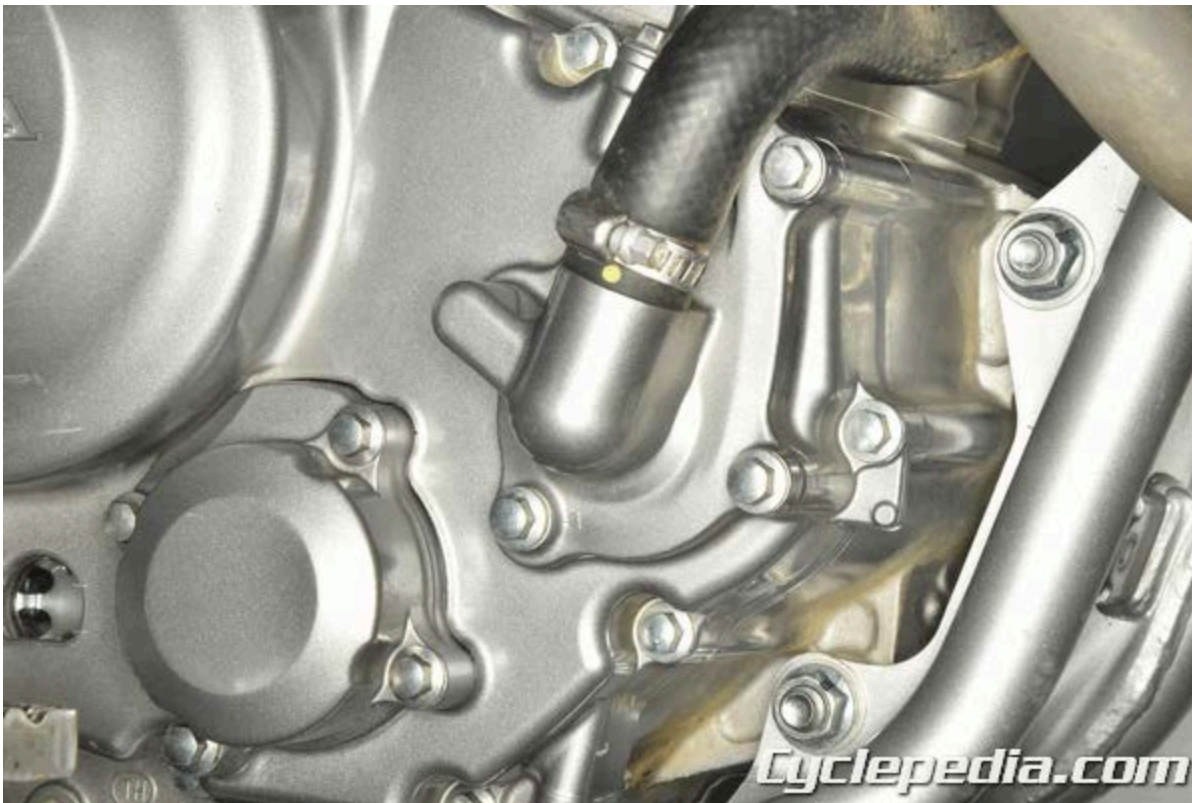


Remove the fuel tank shrouds and the radiator cover for access. See the [Bodywork](#) <sup>[1]</sup> topic for more information.



Press down and twist **counterclockwise** to remove the radiator cap.





Position a drain pan below the motor, then loosen the coolant drain plug (the bottom water pump housing bolt with the small triangle cast into the pump housing next to it) using an 8 mm socket.

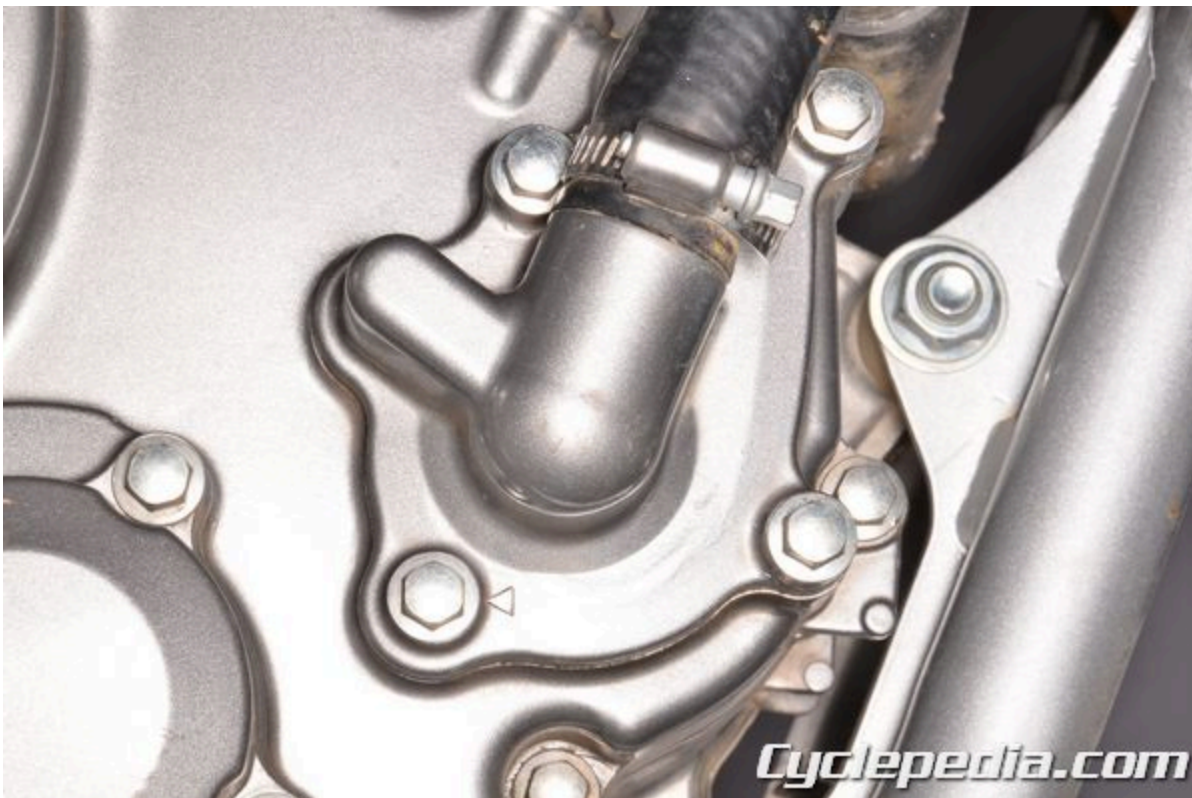


Remove the drain plug and sealing washer. Discard the washer and replace with a new one come installation. Allow the coolant to drain completely into the drain pan.





After the coolant has drained use a new sealing washer and install the bolt.



Tighten the drain bolt securely using an 8 mm socket.



Move the drain pan under the reserve tank. Squeeze the spring type clamp and slide it up the radiator filler neck siphon hose where it attaches to the fitting on the bottom of the reserve tank. Disconnect the hose to allow the tank and hose to drain into the pan. Then reconnect the hose.

Note: If needed remove the reserve tank completely to wash it out and drain it thoroughly. See the [Coolant Reserve Tank](#) <sup>[2]</sup> topic for more information.

## Refilling and Bleeding





Fill the radiator with coolant to the edge of the filler neck. Start the engine with the transmission in neutral and allow it to idle for two or three minutes. Rev the throttle a few times to release any trapped air bubbles and stop the engine. Re-fill the radiator to the edge of the filler neck.



Install the radiator cap, press down and turn it **clockwise** to lock it in place.



Remove the reserve tank cap.



Fill the reserve tank to the upper level line. See the [Cooling System Inspection](#) <sup>[3]</sup> topic for more information, then reinstall the cap.

Install the radiator cover and the fuel tank shrouds. See the [Bodywork](#) <sup>[1]</sup> topic for more information. URLs in this post:

[1] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

[2] Coolant Reserve Tank: <https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/coolant-reserve-tank/>

[3] Cooling System Inspection: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/cooling-system/>

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## Radiator and Fan

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

### Suggested Tools and Supplies

8 mm Socket  
10 mm Socket  
#2 Phillips Screwdriver  
Needle Nose Pliers  
Ratchet  
Torque Wrench  
Nitrile Gloves  
Safety Glasses

## Radiator Cap Pressure Test

**Do not remove the radiator cap while the engine is hot!**

Remove the radiator cap from the top of the radiator. See the [Coolant](#) <sup>[1]</sup> topic for more information.



Test the cap with a radiator cap tester. Be sure to wet the sealing surfaces of the radiator cap before connecting it to the tester. If the cap opens at a lower or higher pressure than what is specified, replace the radiator cap. The cap should hold the specified pressure for six seconds or more.

**Radiator cap relief pressure:** 107.9 – 137.3 kPa (16 – 20 psi)

## Radiator Pressure Test



Use a radiator pressure tester to locate defective cooling system components. Attach the tester and pressurize the system, do not exceed **20 psi** or the system components can be damaged. If the tester can not hold pressure for at least six seconds locate and replace the damaged leaking components.

## Radiator and Fan Removal

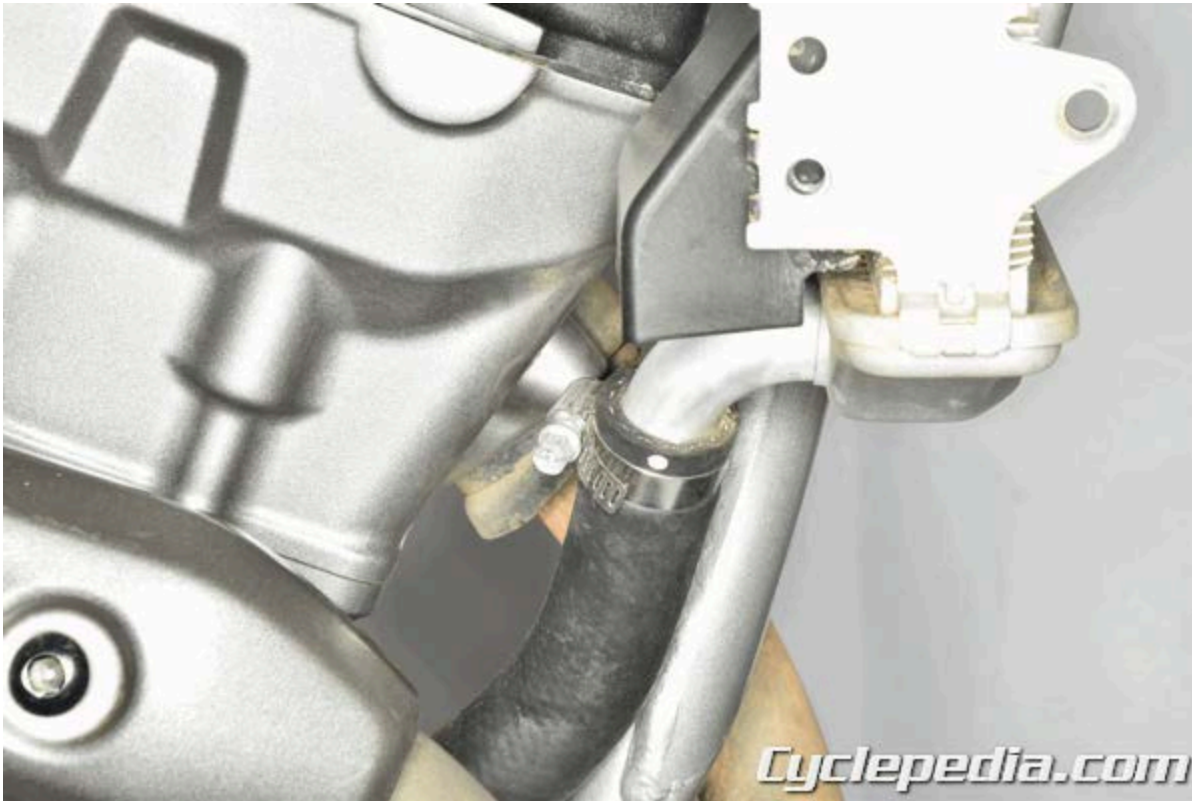
Drain the coolant. see the [Coolant](#) <sup>[1]</sup> topic for more information.

Remove the right fuel tank shroud and the radiator cover. See the [Bodywork](#) <sup>[2]</sup> topic for information.





Disconnect the hoses and wiring from the PAIR control solenoid valve which is mounted to the cooling fan case. See the [Emissions](#) <sup>[3]</sup> topic for more information.



Loosen the lower radiator (radiator-to-water pump) hose clamp using a #2 Phillips screwdriver.



Push the clamp down past the fitting, then carefully push the hose off the fitting.

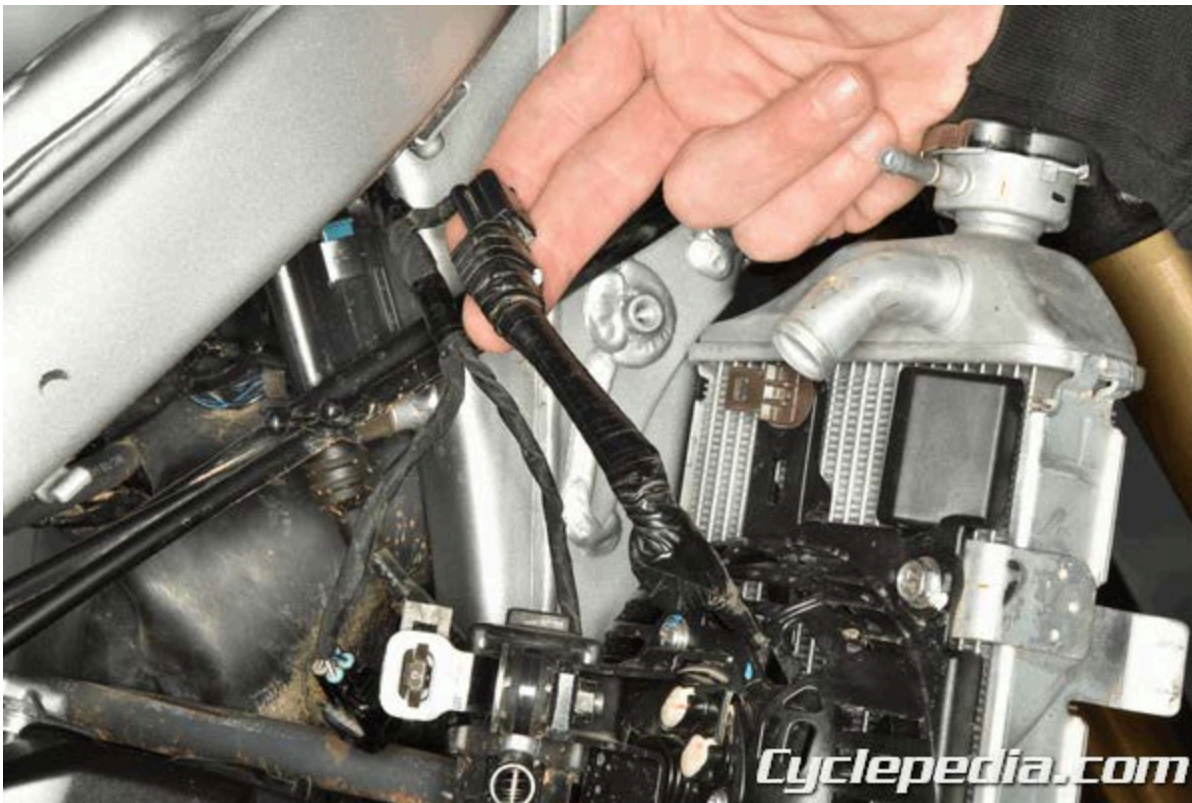


Using a pair of needle nose pliers squeeze the spring type clamp to release it, then push the siphon hose off the fitting on the radiator filler neck.

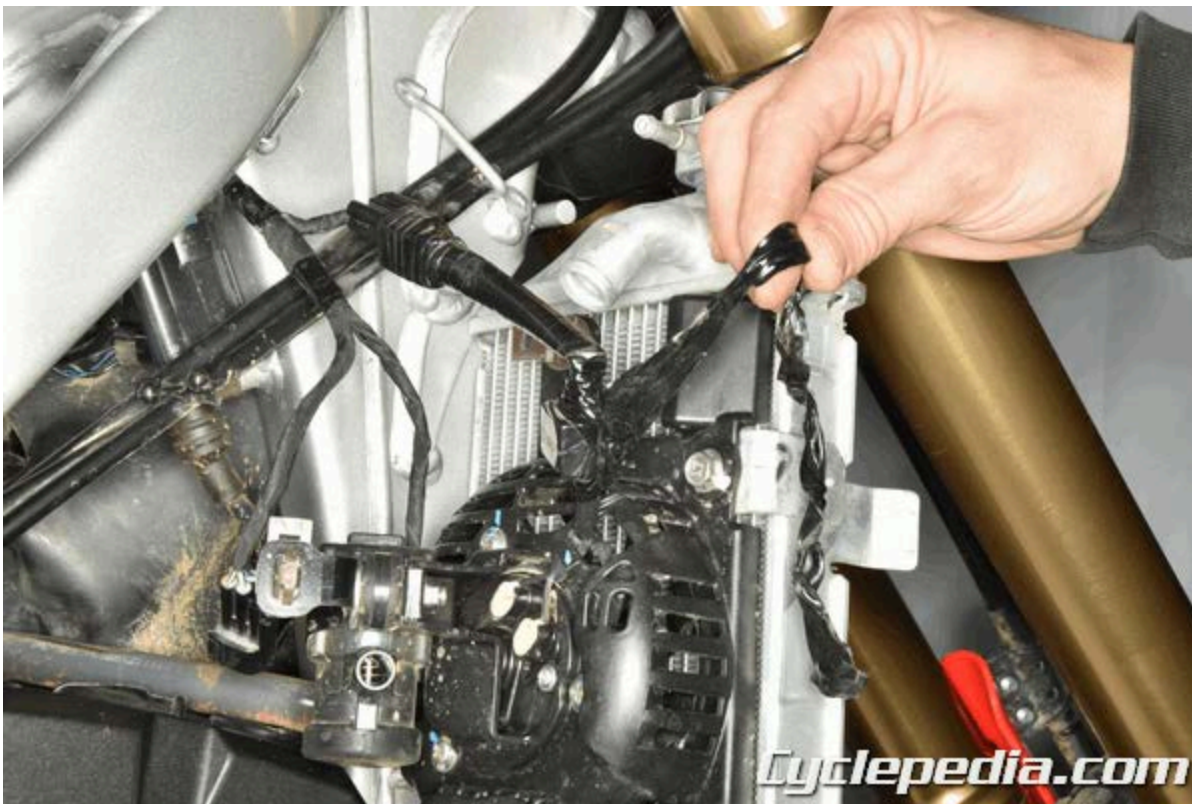


Loosen the upper radiator (radiator-to-thermostat) hose clamp and disconnect the hose from the radiator fitting.





Locate the cooling fan wiring harness.

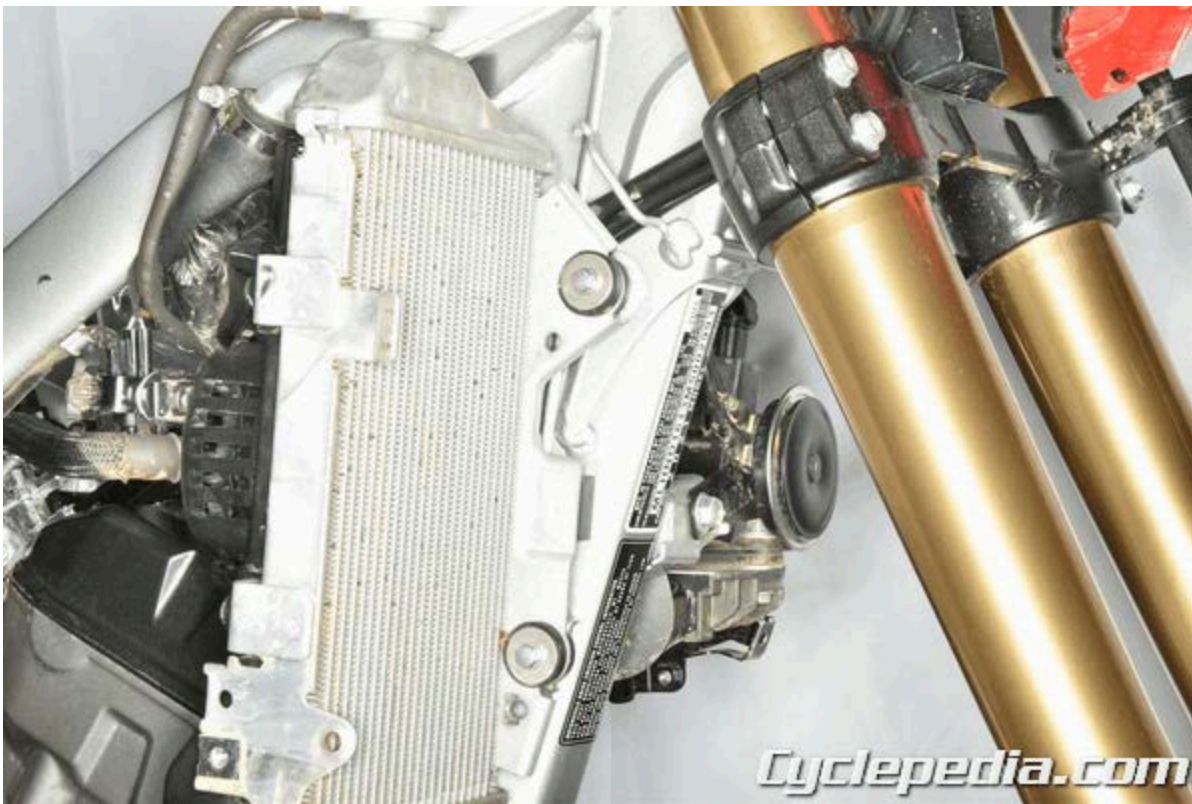


If necessary, unwind and remove the electrical tape to free the harness.





Unplug the cooling fan wiring connector.



Loosen the radiator mounting bolts using an 8 mm socket.





Support the radiator, then remove the bolts and washers from the rubber grommets in the radiator.



Remove the radiator and cooling fan assembly from the frame.

## **Inspection & Overhaul**



Check the radiator for any bent or damaged fins. You can use a small flat blade screwdriver to straighten them out, but be careful not to puncture the radiator. Clean any bugs or debris using a soft bristle brush, compressed air, or steam cleaner. Only direct compressed air or the steam cleaner straight at the radiator perpendicular to the surface. Compressed air or a steam cleaner applied at an angle or too close to the radiator can cause damage.

NOTE: Always wear safety glasses when using compressed air and never point it directly at yourself or anyone else.

The radiator should be replaced if approximately 20% or more of its fins are permanently damaged or clogged.





Remove the three cooling fan assembly mounting bolts using a 10 mm socket.



Separate the fan and motor assembly from the radiator.



Inspect the condition of the radiator rubber mounts.



If necessary, remove the collars and replace the mounts.





If the fan motor is to be removed from the shroud the PAIR control valve must be removed from the back of the shroud. See the [Emissions](#) <sup>[3]</sup> topic for more information.



Remove the three cooling fan motor screws using a #2 Phillips screwdriver.



Separate the fan and motor from the shroud.



To replace the motor or fan remove the nut using an 8 mm socket. When installing the fan to the motor, align the flat spot on the radiator fan shaft with the flat on the fan. Apply a light coat of a thread lock compound to the nut threads, then install the nut and tighten to specification.

**Cooling fan nut (apply threadlock):** 1.0 N-m (0.1 kgf-m, 0.7 ft-lb)





Install the fan motor to the shroud and tighten the screws to specification using a #2 Phillips driver.

**Fan motor screw:** 2.7 N-m (0.3 kgf-m, 2.0 ft-lb)



Install the PAIR control valve to the back of the shroud. See the [Emissions](#) <sup>[3]</sup> topic for more information.



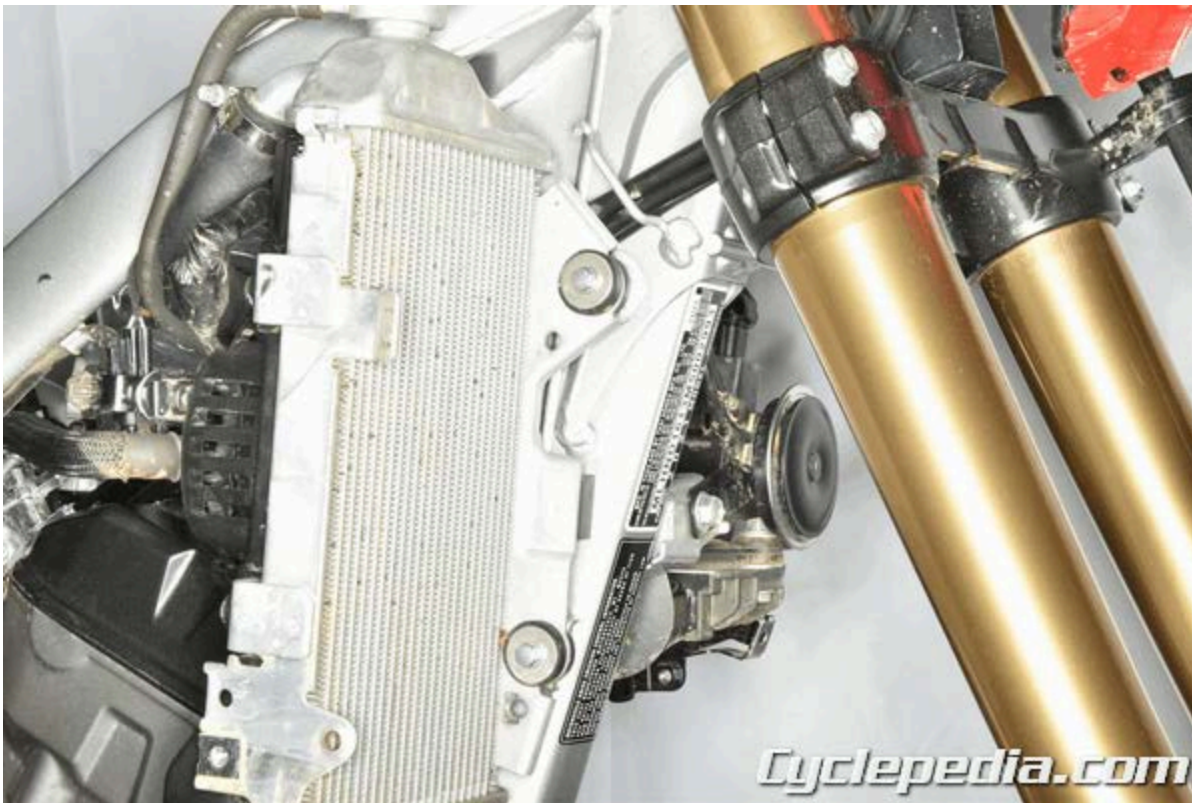
Install the fan and motor assembly onto the radiator and tighten the bolts securely.

## **Radiator and Fan Installation**



Make sure the rubber grommets and collars are in place, then install the radiator and fan assembly to the chassis and lightly thread the mounting bolts.

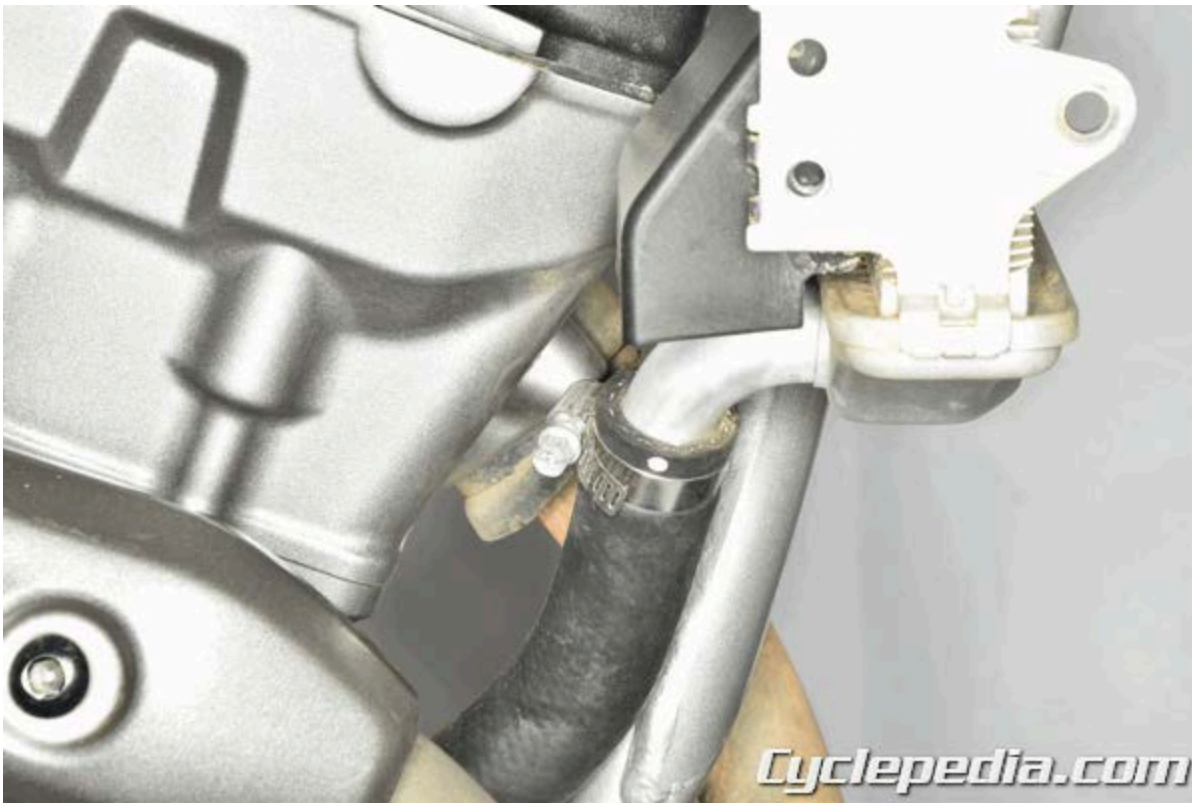




Tighten the bolts securely using an 8 mm socket.



Plug in the cooling fan motor harness connector and secure it.



Reconnect the lower radiator hose and tighten the band clamp securely using a #2 Phillips driver.



Connect the siphon hose and upper radiator hose to the fittings and secure using the clamps.

Fill and bleed the cooling system. See the [Coolant](#) <sup>[1]</sup> topic for more information.

Install the right fuel tank shroud and radiator cover. See the [Bodywork](#) <sup>[2]</sup> topic for information.  
URLs in this post:



[1] Coolant: <https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/coolant/>

[2] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

[3] Emissions: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/emissions/>

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## - Honda CRF300L Service Manual

Thermostat

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

### Suggested Tools and Supplies

8 mm Socket

Ratchet

Thermometer or Laser Pyrometer

Nitrile Gloves

Safety Glasses

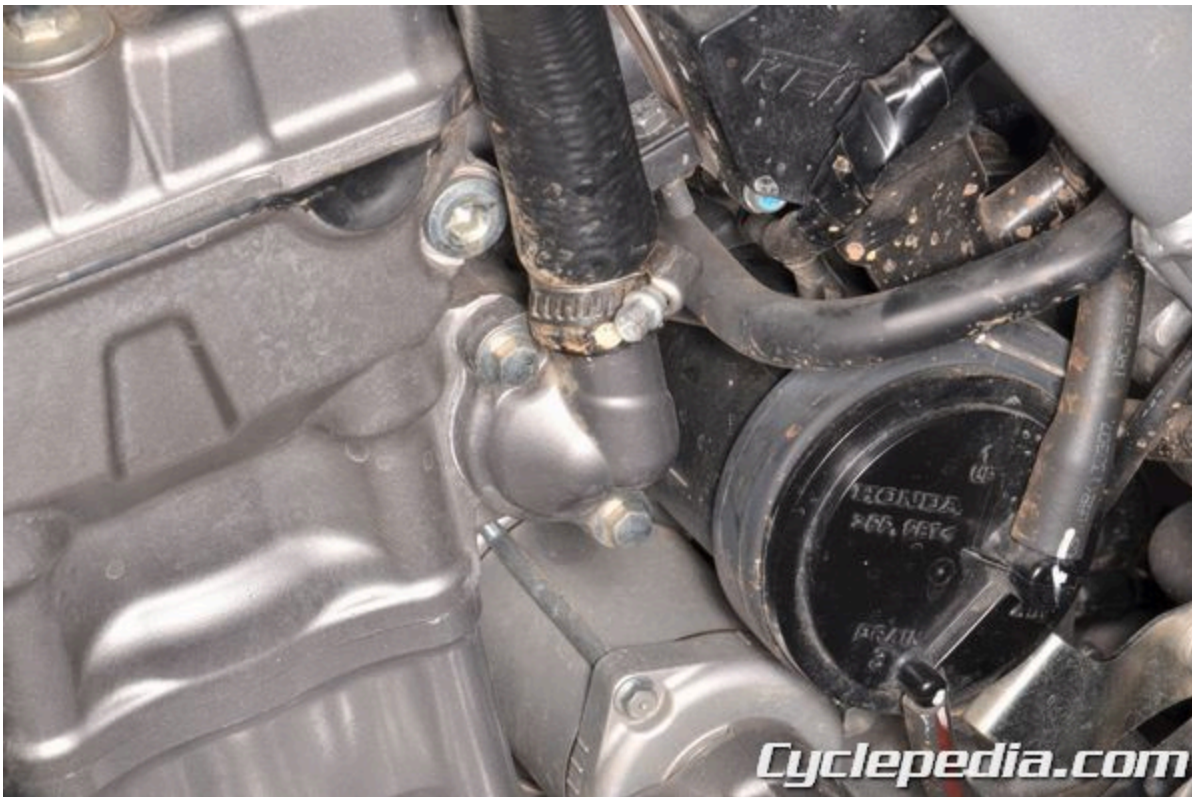
## Removal

Drain the coolant. See the [Coolant](#) <sup>[1]</sup> topic for more information.



The thermostat is located on the right side of the engine on the front side of the cylinder head.





Remove the two cover bolts with an 8 mm socket.

Note: If needed for more play, loosen the clamp band and disconnect the thermostat hose from the housing.



Remove the cover and the thermostat.



Inspect the thermostat and rubber seal for damage.

Inspect the thermostat valve at room temperature, if the valve is open the thermostat is defective and needs to be replaced. Also, replace the thermostat if its seal ring is in poor condition.

To check the thermostat opening temperature, fill a pan with tap water and suspend the thermostat with a piece of wire, completely immersing it in the water making sure the thermostat does not touch the pan.

Place a thermometer in the pan and heat the water on a burner. Gently stir the water and notice what the temperature is when the thermostat starts to open, and what temperature at which it is fully open. Measure the distance the valve lifts when opened to make sure it opens sufficiently.

#### **Thermostat**

**Begin to open:** 81 – 84°C (178 – 183°F)

**Fully open:** 95°C (203°F)

**Valve lift:** 4.5 mm (0.2 in) minimum

## **Installation**





Install the thermostat with the air bleed hole facing up and align the tab on the rubber seal with the slot in the housing.



Install the cover and tighten the bolts and securely.

Fill and bleed the cooling system. See the Coolant <sup>[1]</sup> topic for more information.  
URLs in this post:

[1] Coolant: <https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/coolant/>





## - Honda CRF300L Service Manual

### Water Pump

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

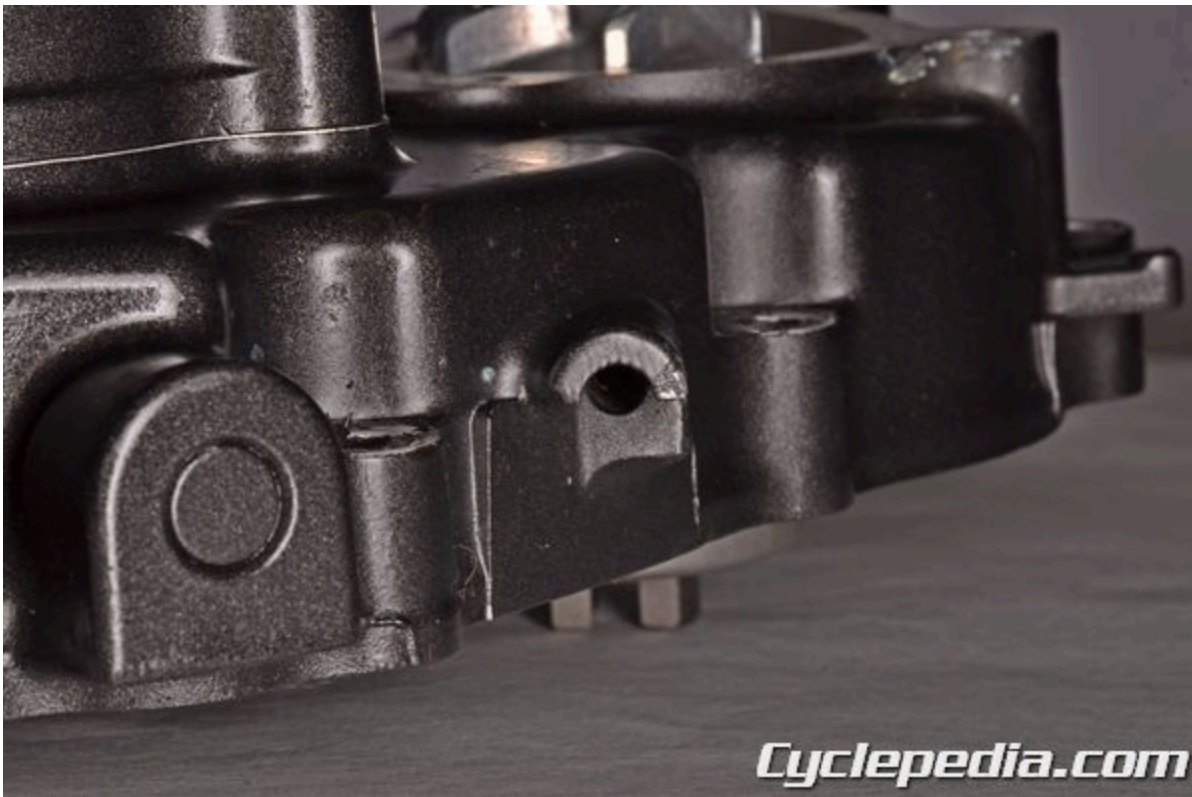
#### Suggested Tools and Supplies

8 mm Socket  
12 mm Deep Well Socket  
Ratchet  
Torque Wrench  
Bearing Puller  
Bearing Driver Set  
Nitrile Gloves  
Safety Glasses

### Inspection



Check the inspection hole on the bottom of the right side engine cover just under the water pump.



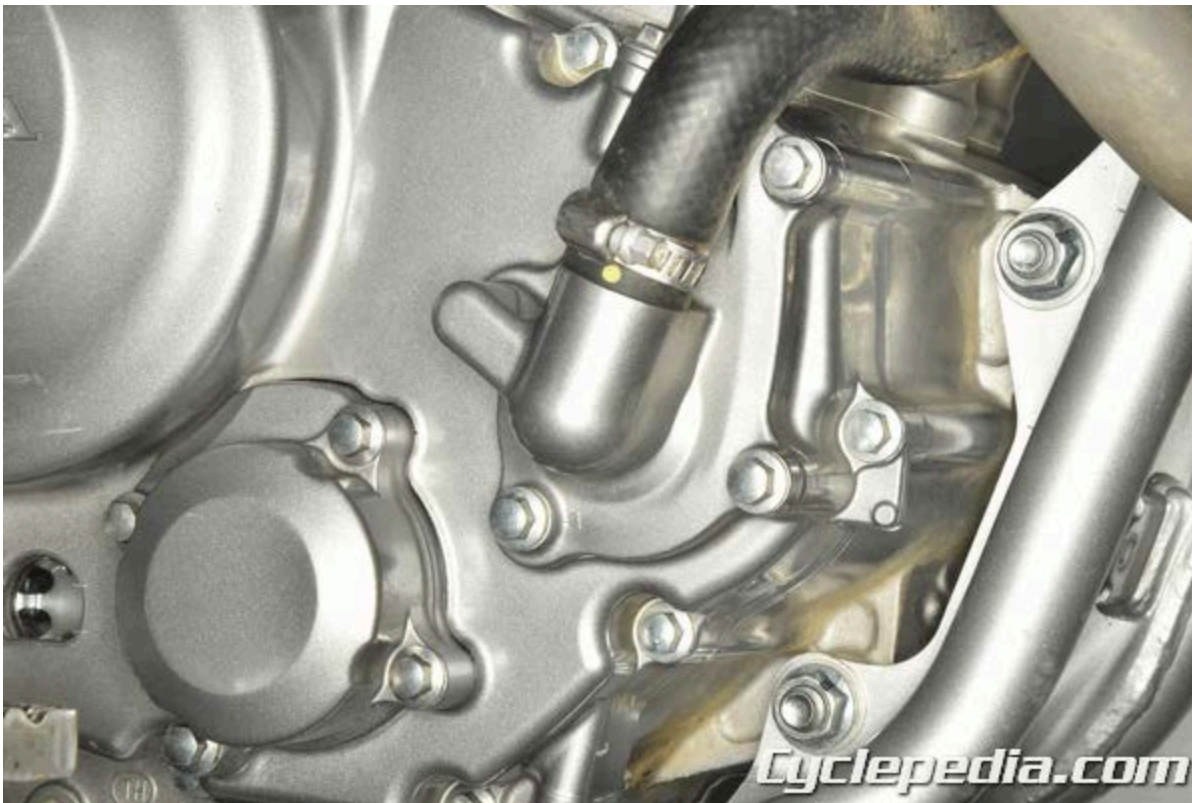
It is normal to see some residue but if coolant drips from the hole as the engine is running the mechanical seal should be replaced. If any oil leaks out of the hole then the oil seal is failing, if either symptom occurs replace the mechanical and oil seal together.

## Removal

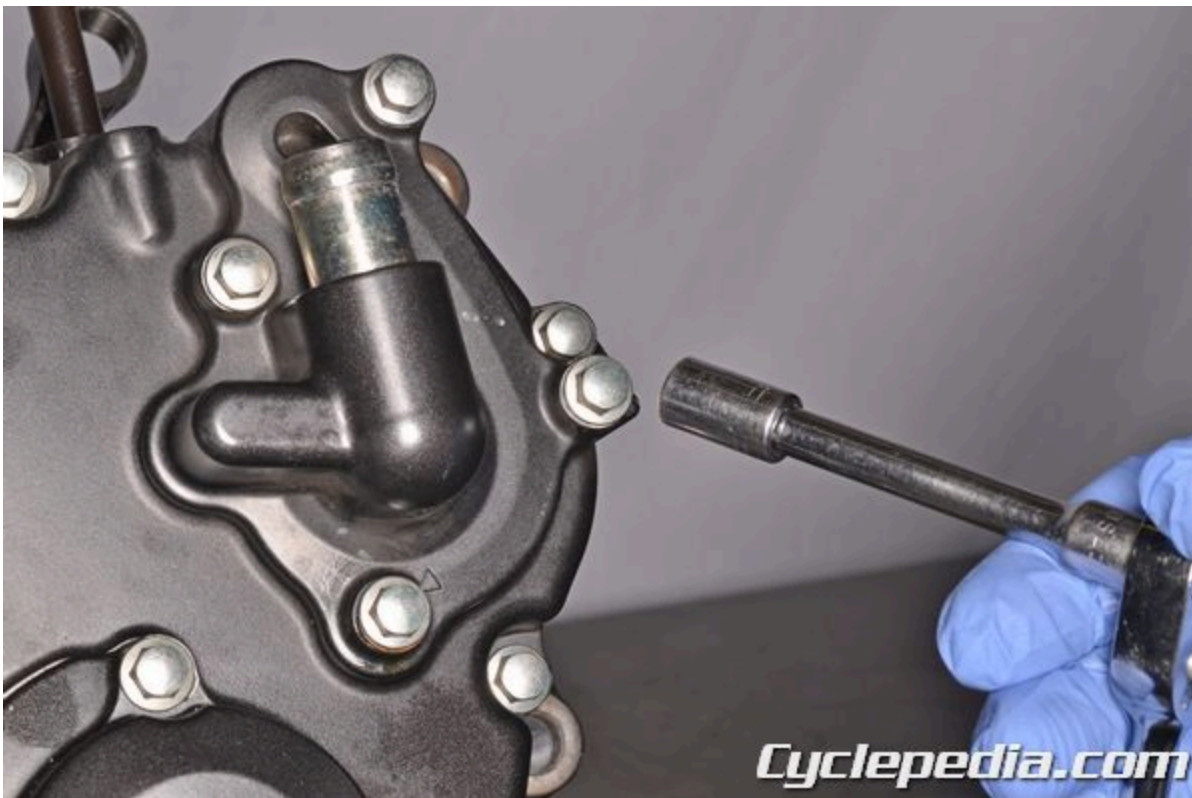


Drain the coolant. See the [Coolant](#) <sup>[1]</sup> topic for more information.

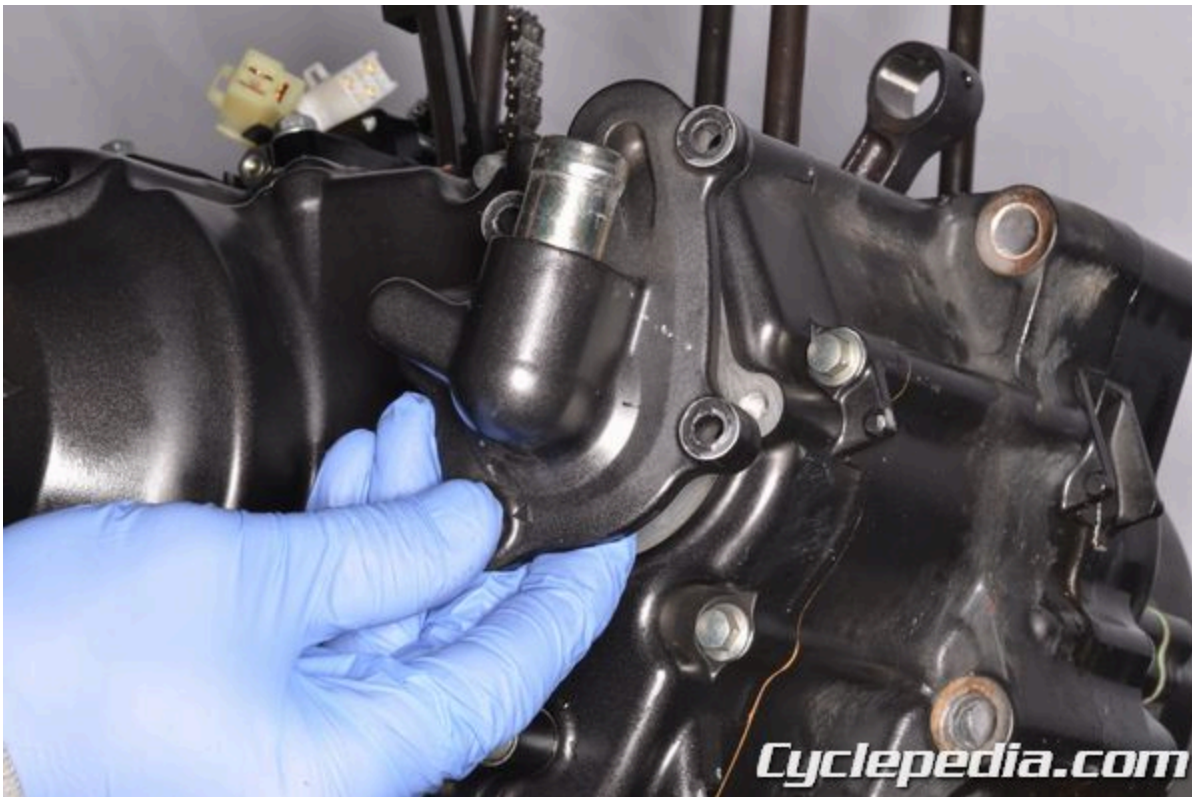




Then loosen the band clamp and disconnect the hose from the fitting on top of the water pump cover.



Remove the remaining water pump cover bolts with an 8 mm socket.



Remove the water pump cover.

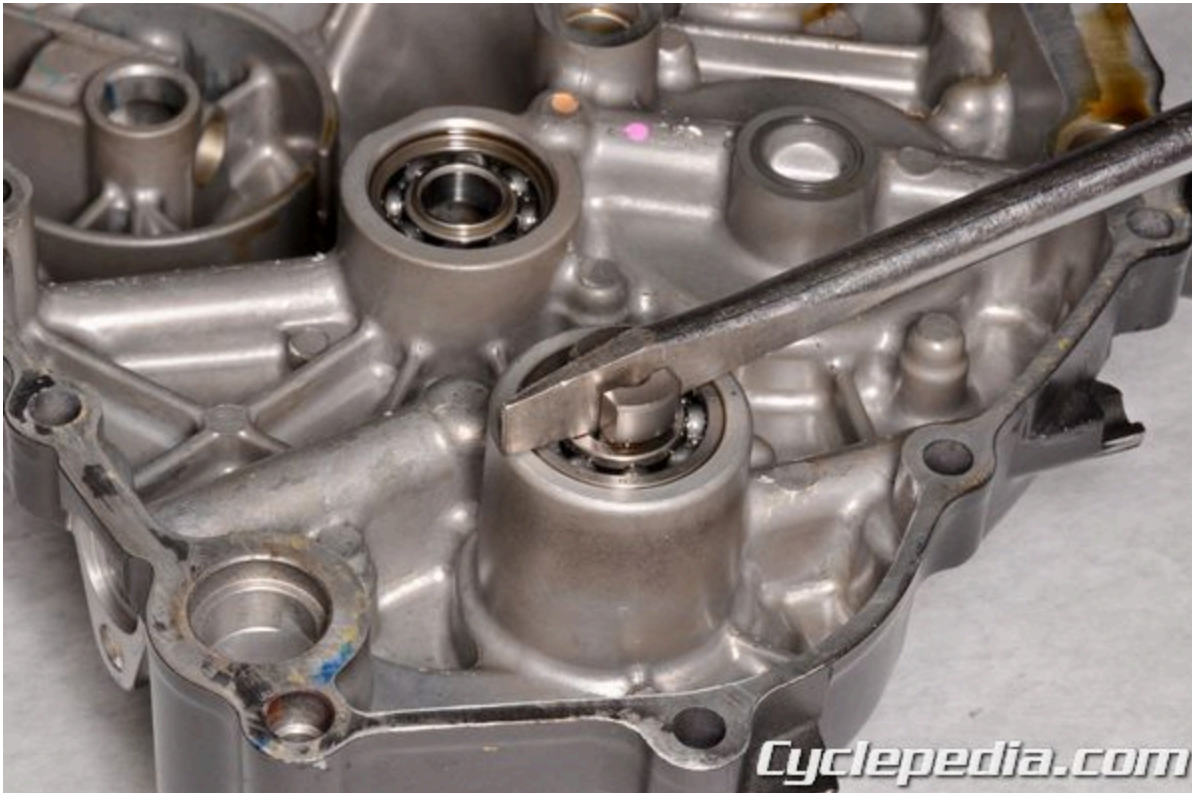


Discard the old O-ring and use a new one at reassembly.

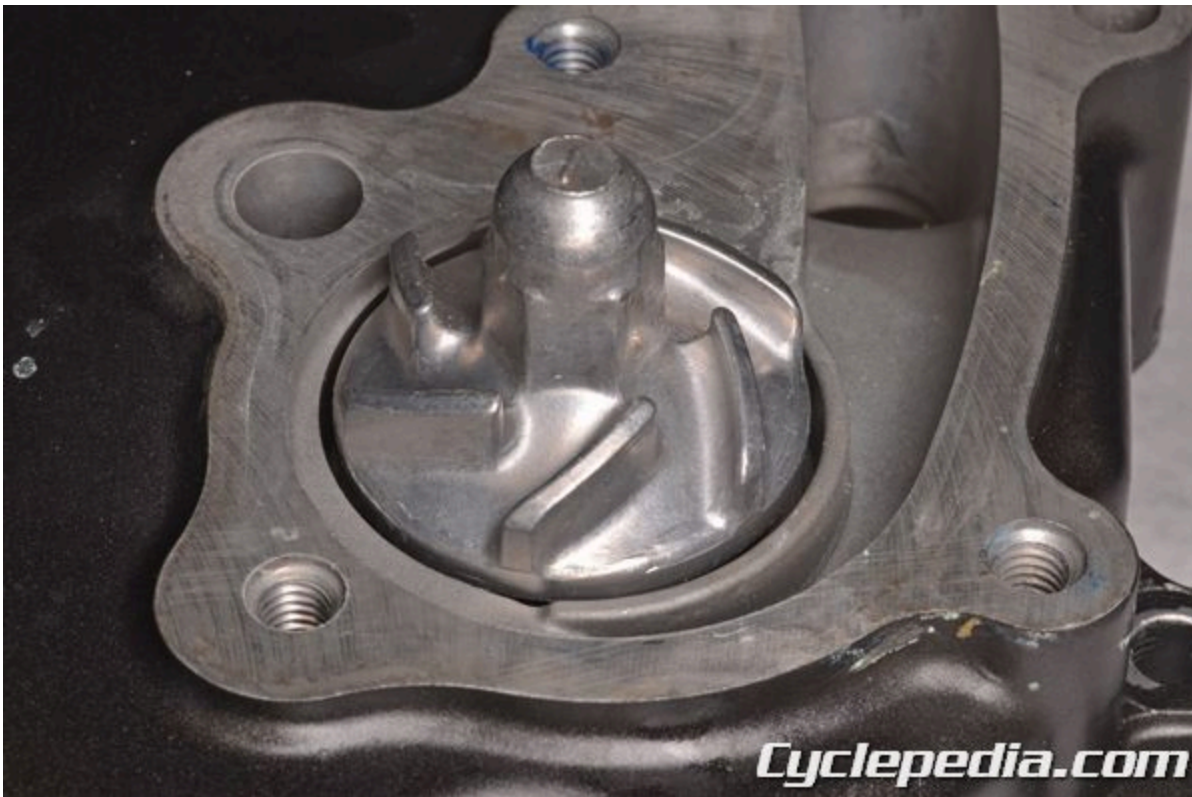




Remove the right crankcase cover. See the [Clutch Removal](#) <sup>[2]</sup> topic for more information.



Use a suitable tool to hold the water pump shaft.



Loosen the impeller with a deep well 12 mm socket.



Remove the impeller.





Remove the washer.



Remove the water pump shaft.

## **Inspection and Overhaul**



Turn the bearings with a finger and replace if they are loose or rough.



Inspect the water pump shaft for damage and pitting, replace the shaft if damage is found. The shaft in the photo was replaced.





Inspect the impeller for wear and damage.



Remove both bearings from the back of the case, one at a time using a suitable 12 mm bearing puller.



Drive out the mechanical seal, be careful not to damage the cover.



Use a shop press and suitable driver to remove the mechanical seal.

**Special Tool – Oil Seal Driver (30 x 36 mm):** 07HMF-KR10101





Remove the oil seal.



Apply a light coat of grease to the lips of the oil seal. Install the new oil seal with the marks facing out. Drive in the oil seal until it sits flush with the cover or up to a depth of 0.5 mm or 0.02 in. below the cover, but no further.



Drive in the new bearings until fully seated one at a time with a suitable bearing driver. Apply a light coating of engine oil to the new bearings.





Press in a new mechanical seal using the special tools. The seal driver must only contact the outer edge of the mechanical seal, drive in the seal until it is fully seated. Use caution not to damage the seal.

**Special Tool – Oil Seal Driver (30 x 36 mm):** 07HMF-KR10101

## Installation



Apply a coat of engine oil to the water pump shaft and install it into the crankcase cover.



Install the washer.



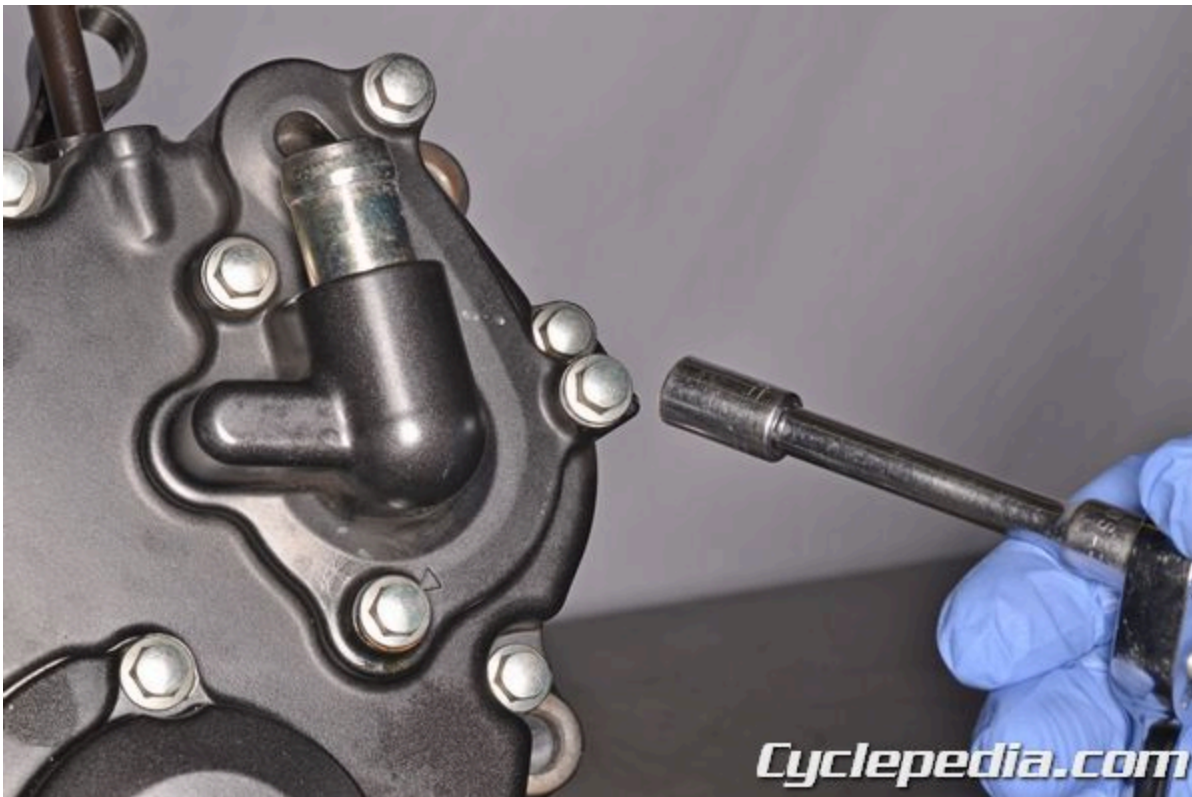


Install the impeller, hold the shaft and tighten the impeller to specification.

**Water pump impeller:** 10 N-m (1.0 kgf-m, 7 ft-lb)

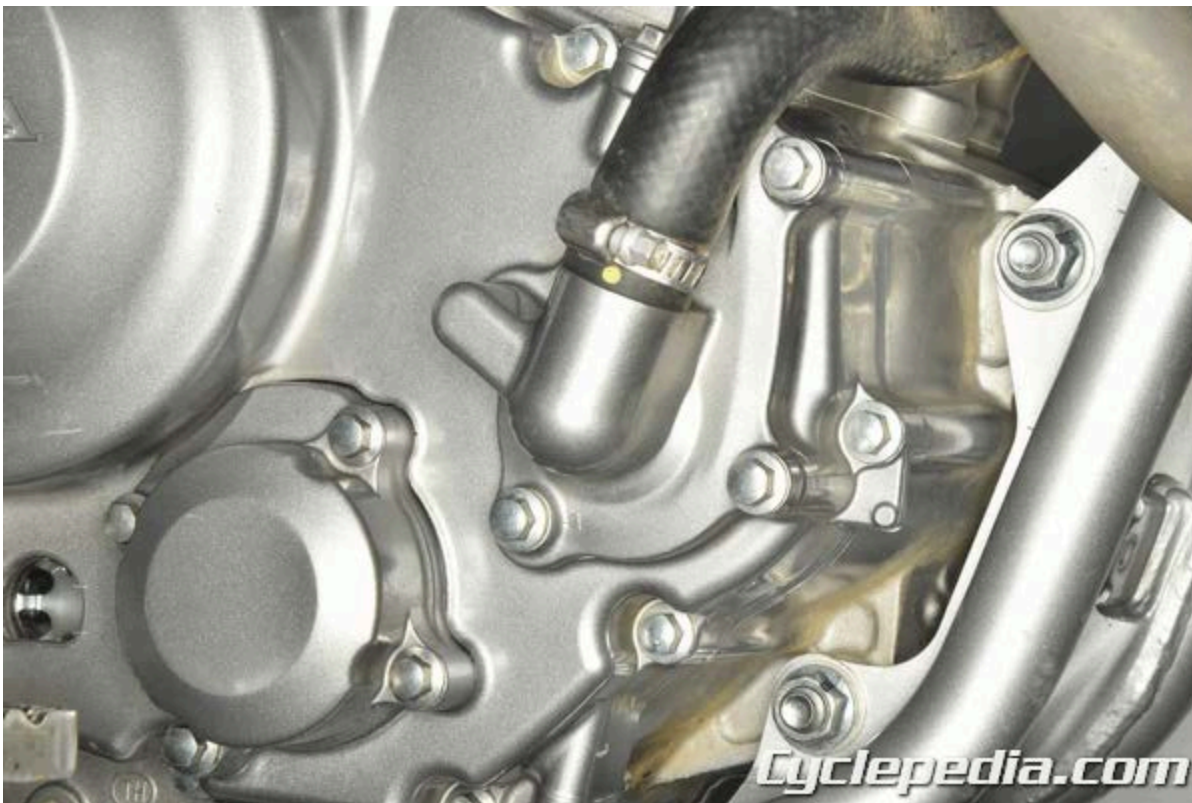


Install the right side engine cover. See the [Clutch Installation](#) <sup>[3]</sup> topic for more information.



Install a new O-ring to the water pump cover. Install the water pump cover and tighten the bolts securely.

Note: Remember to use a new sealing washer on the water pump drain bolt.



Connect the hose to the pump cover and tighten the hose band securely.

Fill and bleed the cooling system. See the [Coolant](#) <sup>[1]</sup> topic for more information.  
URLs in this post:



- [1] Coolant: <https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/coolant/>
- [2] Clutch Removal: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/clutch-removal/>
- [3] Clutch Installation: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/clutch-installation/>

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## - Honda CRF300L Service Manual

### Coolant Reserve Tank

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### Suggested Tools and Supplies

10 mm Socket  
Needle Nose Pliers  
Ratchet  
Nitrile Gloves  
Safety Glasses

## Servicing



Remove the left fuel tank shroud for access. See the [Bodywork](#) <sup>[1]</sup> topic for more information.





Using a pair of pliers to squeeze the tabs of the spring clamp on the overflow hose, pull the clamp back on the hose until it is free of the tank nipple. Gently push the hose from the reservoir tank.



Remove the two tank mounting bolts using a 10 mm socket.





Remove the cap and pour the coolant out of the reserve tank into a drain pan.



Free the radiator siphon hose from the bottom fitting on the tank and remove the tank.





To install the tank reconnect the hoses and seat the clamps, then position the tank to the frame and tighten the two retaining bolts securely.

Fill the coolant reserve tank and check the cooling system for leaks. See the Coolant <sup>[2]</sup> topic for more information.

Install the left fuel tank shroud. See the Bodywork <sup>[1]</sup> topic for more information. URLs in this post:

[1] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

[2] Coolant : <https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/coolant/>

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## - Honda CRF300L Service Manual

### Air Box

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

### Suggested Tools and Supplies

#2 Phillips Screwdriver  
10 mm Socket  
Ratchet  
Torque Wrench  
Needle Nose Pliers  
Nitrile Gloves  
Safety Glasses

See the [Air Filter Servicing](#) <sup>[1]</sup> topic for information on accessing the air filter.

## Removal

Remove or perform the following for access:

[Seat](#) <sup>[2]</sup>

[Bodywork](#) <sup>[3]</sup> (side covers and fuel tank shrouds)

[Fuel Tank](#) <sup>[4]</sup>

[Bodywork](#) <sup>[3]</sup> (rear cowl/upper fender, rear fender/tag mount assembly)

[Exhaust System](#) <sup>[5]</sup> (remove the muffler)

[Helmet Holder](#) <sup>[6]</sup>

[Bodywork](#) <sup>[3]</sup> (rear lower fender)



Squeeze the spring type clamps and slide them up the crankcase breather (bottom) and secondary air supply (top) hoses, then carefully push the hoses off the fittings.





Remove the air cleaner mounting bolt using a 10 mm socket.



Loosen the air cleaner clamp screw using a #2 Phillips screwdriver.



Carefully free the air box from the throttle body and remove it from the chassis.



Inspect the condition of the housing, connecting tube, and resonator for damage and replace components as needed.





To remove the resonator loosen the band screw using a #2 Phillips screwdriver.



Then remove the resonator from the fitting.

## Installation





If the resonator was removed install it to the fitting on the connecting tube by aligning the tab on the resonator with the cutout on the fitting as shown.



Tighten the resonator band screw securely using a #2 Phillips driver.





Position the air box to the chassis aligning and seating the connecting tube on the throttle body.



Tighten the throttle body band screw to specification using a #2 Phillips driver.

**Air cleaner connecting hose band screw:** 1.5 N-m (0.2 kgf-m, 1.1 ft-lb)



Install the air box mounting bolt and tighten to specification using a 10 mm socket.

**Air cleaner housing mounting bolt:** 7.0 N-m (0.7 kgf-m, 5 ft-lb)



Reconnect the breather (bottom) and PAIR (top) hoses, then secure using the spring clamps.

Install or perform the following:

Bodywork <sup>[3]</sup> (rear lower fender)



Helmet Holder <sup>[6]</sup>

Exhaust System <sup>[5]</sup> (remove the muffler)

Bodywork <sup>[3]</sup> (rear cowl/upper fender, rear fender/tag mount assembly)

Fuel Tank <sup>[4]</sup>

Bodywork <sup>[3]</sup> (side covers and fuel tank shrouds)

Seat <sup>[2]</sup>

URLs in this post:

[1] Air Filter Servicing: **<https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/air-filter-servicing/>**

[2] Seat: **<https://www.cyclepedia.com/manuals/online/cpp-323/external-components/seat/>**

[3] Bodywork: **<https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>**

[4] Fuel Tank: **<https://www.cyclepedia.com/manuals/online/cpp-323/external-components/fuel-tank/>**

[5] Exhaust System: **<https://www.cyclepedia.com/manuals/online/cpp-323/external-components/exhaust-system/>**

[6] Helmet Holder: **<https://www.cyclepedia.com/manuals/online/cpp-323/external-components/helmet-holder/>**

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## - Honda CRF300L Service Manual

### Releasing Fuel System Pressure

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

Shop Rags  
Nitrile Gloves  
Safety Glasses

The fuel system operates under high pressure and should be depressurized using this procedure anytime the fuel line is going to be disconnected to help minimize the danger of fuel spray in the work area.

Fuel system pressure is released by unplugging the fuel pump and starting/running the motor (or cranking it) to pulse the fuel injectors allowing fuel to spray into the cylinders until the hose is depressurized.

Access to the fuel pump electrical connector can be easier if the fuel tank is unbolted and raised. See the [Fuel Tank](#) <sup>[1]</sup> topic for more information.



Unplug the white 5P harness connector for the fuel pump.

Start the engine and let it run until it dies of fuel starvation to relieve the fuel pressure in the feed hose. If the engine won't start, use the starter motor to crank it a couple additional short bursts to make sure pressure is bled off.

Turn the ignition switch OFF and disconnect the negative battery cable for safety (to prevent sparks or an accidental attempt to initialize the pump while fittings are still disconnected). See the [Battery](#) <sup>[2]</sup> topic for more information.





Once repairs are completed, reconnect the fuel pump wiring and the battery cable, Cycle the ignition switch on/off a few times, listening for the fuel pump to run each time. Repeat until the system is pressurized (the fuel pump sound should change, it will typically sound more harsh until the system is primed, and then sound normal once pressurized). Check for fuel leaks and repair if any are found before attempting to start and run the motorcycle.

URLs in this post:

[1] Fuel Tank: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/fuel-tank/>

[2] Battery: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/battery/>

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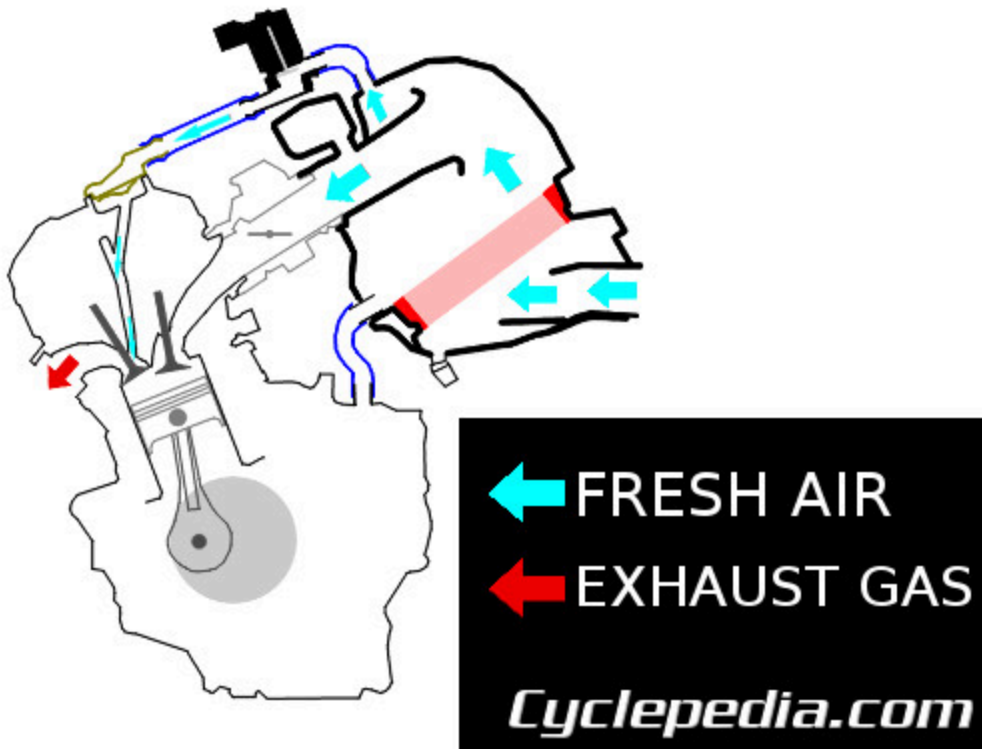
Emissions

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

**Suggested Tools and Supplies**

8 mm Socket  
10 mm Socket  
Ratchet  
Torque Wrench  
Nitrile Gloves  
Safety Glasses

**PAIR System (Secondary Air Supply)**



The pulse secondary air supply system supplies fresh air to the exhaust port to increase the temperature and burn the unburned exhaust gases for cleaner exhaust emissions. In the powersports field this type of system is often referred to as PAIR system for pulse air injection reed valve, as a reed valve is used to restrict fresh air entry into the exhaust port except for when there is negative pressure in the exhaust pipe. This also prevents exhaust gases from entering the air injection system.

The system includes a hose that routes filtered air from the air box to a PAIR control solenoid valve. The valve is opened and closed based on operating conditions and controls the flow of air from the air box to the reed valve on the cylinder head cover.





To inspect the system, start the engine and let it warm up until the coolant temperature reaches normal operating temperature. Open the air box or temporarily disconnect the air supply hose (upper of the two hoses on the air box fittings) so you can feel for suction. Open the throttle body slightly with the engine running and check that air is being drawn into the supply hose. If not check for signs of clogging and that the PAIR solenoid valve is operating correctly, repair/replace, as necessary.

Stop the engine and remove PAIR Reed Valve. Check that the valve is free of carbon deposits. If the valve is dirty/fouled, then check the following:

- Signs of wear or damage on the valve itself.
- Signs of deterioration, cracks, or damage to the rubber seat.
- Signs of deformation or damage to the valve stopper.

Replace the Reed Valve if any of these signs are spotted.

## **Reed Valve**

Remove the radiator and cooling fan with the hoses still connected and support it aside for access. See the [Radiator, Cap and Fan](#) <sup>[1]</sup> topic for more information.



A hose on top of the cylinder head attaches the PAIR control solenoid valve to the reed valve.

Note: The radiator and PAIR control valve is already removed in the above photo.



Squeeze the spring type clamp and slide it down off the reed valve fitting, then disconnect the hose from the reed valve.





The PAIR check valve is located on the cylinder head cover.



Remove the two check valve cover bolts with an 8 mm socket.



Remove and inspect the reed valve and if needed the baffle screen mounted below it in the cover for wear or damage. Check the reed valve for damage or fatigue. Replace any valve one which the rubber seat is cracked, damaged, or otherwise deteriorated. Also replace any valve that has clearance between the reed and seat.



Return the parts to the cylinder head cover.

Install the two check valve cover bolts with an 8 mm socket.



**PAIR check valve cover bolt:** 5.2 N-m (0.5 kgf-m, 3.8 ft-lb)

Install and secure the radiator and cooling fan. See the [Radiator and Fan](#) <sup>[1]</sup> topic for more information.

### **PAIR Control Solenoid Valve**



The PAIR control solenoid valve is mounted to the back of the radiator and cooling fan assembly on the right side of the motorcycle.

### **Removal and Installation**

For best access to service or inspect the valve remove the radiator and cooling fan with the hoses still connected and support it aside. See the [Radiator and Fan](#) <sup>[1]</sup> topic for more information.



Squeeze the spring type clamp and push the air box hose off the fitting on one side of the valve.



Repeat for the hose to the reed valve on the cylinder head.





Unplug the PAIR control solenoid valve 2-pin connector.



Remove the two PAIR control solenoid mounting bolts using an 8 mm socket.



Remove the connector stay.



Remove the valve from the cooling fan shroud. Keep track of the collars and mounting grommets.  
Installation is in the reverse order of removal.

### **PAIR Control Solenoid Valve Operation Inspection**





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Remove the PAIR control solenoid valve. Check that air does not flow through the valve when the 12 V battery is connected to the PAIR control solenoid valve terminals.

Air *should* flow only when there is no voltage applied to the PAIR control solenoid valve terminals.

Battery Voltage = No Flow

No Battery Voltage = Flow

### **PAIR Control Solenoid Valve Resistance**

Set the multimeter to read ohms of resistance.

Measure the resistance between the terminals of the PAIR control solenoid valve.

**PAIR control solenoid valve resistance (20°C/68°F): 24 – 28  $\Omega$**

Replace the valve if the resistance is out of specification.

## **EVAP System**

The Evaporative Emission System utilizes a charcoal canister to capture and store hydrocarbon vapors and a purge solenoid which controls when those vapors can be drawn from the canister and burned during normal engine operation.



On one side of the canister a pair of hoses supplies fresh air to the canister (upper) and provides a drain (bottom) should the canister become saturated.

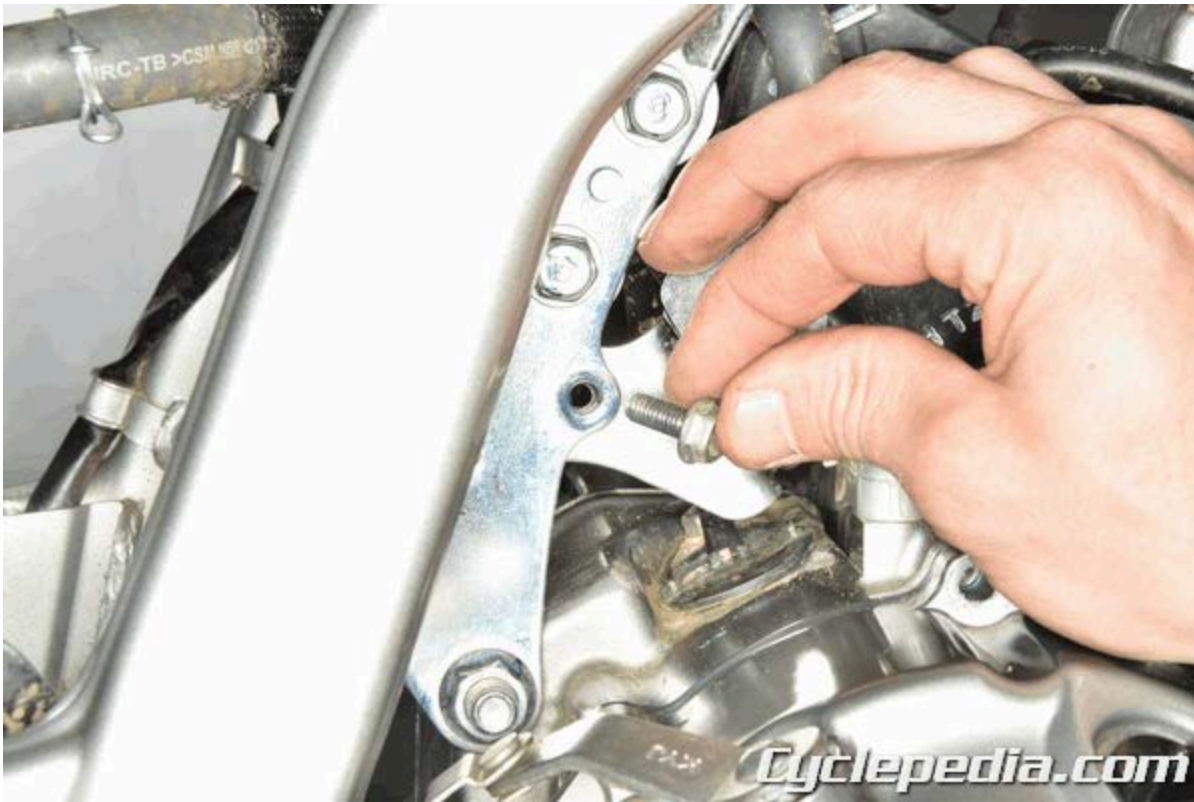


On the other side a vent hose (angled in accompanying photo) directs fuel vapors from the fuel tank while an outlet hose (vertical in photo) delivers stored vapors to the purge valve.





This photo shows both the tank vent inlet hose (black) and the purge valve outlet hose (gray) where it attaches to the intake.



A pair of brackets secures the canister. Remove the bolt from each bracket using a 10 mm socket.





Remove the bracket from the left side of the canister.



Then pull the canister and bracket outward slightly from the right side of the motorcycle for access.





The purge control solenoid is mounted on top of the canister.



Unplug the purge control solenoid wiring harness connector.



The purge line has a joint just after the protective nylon.



Disconnect the purge line at the joint.





Remove the canister for access and/or component service/replacement as needed.

### **EVAP Purge Control Solenoid Valve Hose Operation Inspection**

Remove the canister and EVAP purge control solenoid valve assembly for access as detailed earlier in this section.

Disconnect the hoses as needed for access and inspect the valve as follows:

Air should only flow through the valve when 12 volts are jumped to the EVAP purge control solenoid valve terminals.

12V Jump = Flow

No 12V Jump = No Flow

### **EVAP Purge Control Solenoid Valve Hose Resistance Inspection**

Set the multimeter to read ohms of resistance.

Measure the resistance between the terminals of the EVAP control solenoid valve.

**EVAP purge control solenoid valve resistance (20°C/68°F):** 30 – 34  $\Omega$

Replace the valve if the resistance is out of specification.

URLs in this post:

[1] Radiator, Cap and Fan: <https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/radiator/>

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## Fuel Injector

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

### Suggested Tools and Supplies

8 mm Socket  
Ratchet  
Torque Wrench  
Nitrile Gloves  
Safety Glasses

## Removal

Raise and support the fuel tank for access. See the [Fuel Tank](#) <sup>[1]</sup> topic for more information.

Properly release the fuel system pressure. See the [Releasing Fuel System Pressure](#) <sup>[2]</sup> topic for more information.



Unplug the fuel injector connector.





To check the injector measure the resistance between the fuel injector 2P connector terminals.

**Fuel injector resistance (20°C/68°F):** 11 – 13  $\Omega$



Remove the two injector joint mounting bolts with an 8 mm socket.



Carefully pull the fuel injector and joint assembly along with the fuel hose from the top of the throttle body.



Note: If the fuel feed line or the injector joint require service, disconnect the fuel line from the joint fitting in the same manner as the fuel line is removed from the tank fitting. See the [Fuel Tank](#) <sup>[1]</sup> topic for more information.





Note the orientation of the injector to the joint, then remove the injector. Remove the O-ring from the top of the injector and seal ring from the bottom of the fuel injector. Replace the seals with new items on assembly.

## Installation



Apply a light coat of fresh engine oil to the new O-ring and seal ring. Install the new seals onto the fuel injector. Fit the fuel injector into the joint making sure to align it as noted earlier during removal.

Note: Some injectors use a tab on the joint that locks the injector with the connector in the proper orientation.



Install the fuel injector, joint and hose assembly to the throttle body.

Note: If the fuel feed line was removed from the joint fitting, reconnect it now and make sure it is fully seated. See the [Fuel Tank](#) <sup>[1]</sup> topic for more information.





Install the fuel injector mounting bolts. Tighten the fuel injector mounting bolts to specification with an 8 mm socket.

**Injector joint mounting bolt:** 5.1 N-m (0.5 kgf-m, 3.8 ft-lb)



Plug in the fuel injector harness.

Install the fuel tank. See the [Fuel Tank](#) <sup>[1]</sup> topic for more information.

Pressurize the fuel system and check for leaks. Do not operate the motorcycle until any leaks are repaired. See the [Fuel System Pressure](#) <sup>[2]</sup> topic for more information.  
URLs in this post:

[1] Fuel Tank: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/fuel-tank/>

[2] Releasing Fuel System Pressure: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/releasing-fuel-system-pressure/>

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## - Honda CRF300L Service Manual

### Fuel Pump

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### Suggested Tools and Supplies

10 mm Socket  
Ratchet  
Torque Wrench  
Nitrile Gloves  
Safety Glasses

### Fuel Pump Inspection

The most basic (and easiest) test for the fuel pump and control circuit is simply to turn the ignition switch ON and set the engine stop switch to RUN, then listen for the fuel pump to operate for a few seconds. If the pump runs the circuit is supplying voltage to the pump. If pump does not run the problem could be in the pump or the circuit. To determine which is at fault start by checking the fuel pump input voltage.

There should be power to the pump for 2 seconds anytime the key is first turned ON or if the starter is cranking and/or the engine is running.

#### Fuel Pump Control Circuit

Use the following harness and component wire colors when testing/servicing the fuel pump unit and control circuit.



The wiring harness side of the fuel pump circuit contains the following wires:

**Green** (Level Sender -)  
**Yellow** (Level Sender +)  
**Brown** (Pump -)  
**Black/Blue** (Pump +)





The fuel pump unit contains the following wires between its integral harness connector and the actual sub-components for the pump motor and level sending unit:

**Sender** – Black and Red wires

**Pump** – Yellow and Green wires



So the wiring in the harness connects across the sub-component wiring as follows:

Harness Green (gnd) – to – Level Sender Black (gnd)

Harness Yellow (+ voltage) – to – Level Sender Red (+ voltage)

Harness Brown (gnd) – to – Pump Green (gnd)  
Harness Black/Blue (+ voltage) – to – Pump Yellow (+ voltage)

## Fuel Pump Input Voltage

Unplug the fuel pump white (5P) connector. See the [Fuel Tank](#) <sup>[1]</sup> topic for more information.



Set the multimeter to read DC voltage. Measure the voltage across the Black/blue (+) and Brown (-) wire terminals.

Turn the ignition switch ON and the engine stop switch to RUN. Battery voltage should be present for around 2 seconds.

If there is no voltage, repeat the test moving the meter ground probe to a good engine ground to confirm if the ground circuit is the problem.

If there is still no voltage check the following:

- Fuses
- Ignition Switch
- Engine Stop Switch
- Bank Angle Sensor
- Relays

If voltage is present the pump is suspect.

## Fuel Pressure Inspection

If the fuel pump runs but there is a performance problem/symptom like lack of fuel, poor performance, or engine start failure perform a pressure inspection.

Raise and support the tank for access. See the [Fuel Tank](#) <sup>[1]</sup> topic for more information.





Relieve the fuel pressure and disconnect the quick connect fitting from the fuel pump. See the [Fuel Tank](#) <sup>[1]</sup> topic for more information.

Attach the fuel pressure gauge and attachment between the pump fitting and feed line.

#### **Special Tools –**

**Fuel pressure gauge:** 07406-0040004

**Pressure gauge attachment:** 070MJ-K260100

Temporarily connect the battery negative (-) cable and the fuel pump connector.

Turn the ignition switch ON and the engine stop switch to RUN.

Start the engine and let it idle. Read the fuel pressure.

**Fuel pressure at idle :** 288 – 300 kPa (2.9 – 3.1 kgf/cm<sup>2</sup>, 42 – 44 psi)

If the fuel pressure is much higher than specified, replace the fuel pump assembly.

If the fuel pressure is much lower than specified, inspect the following:

Fuel line leaking

Pinched or clogged fuel feed hose or fuel tank breather/EVAP hose

Fuel pump unit

Clogged fuel filter

If there is any erratic swing or vibration with the gauge needle, replace the fuel filter on the pump and recheck.

After inspection, relieve the fuel pressure see the [Fuel Tank](#) <sup>[1]</sup> topic for more information.

Remove the special tools from the fuel pump and reconnect the fuel feed hose.

### **Fuel Flow Inspection**

If the pump pressure is within specification but problems are still suspected, check the fuel flow as detailed here.



Relieve the fuel pressure and disconnect the quick connect fitting at the fuel injector end of the fuel line.

Place the end of the hose into a suitable gasoline container.

Temporarily connect the battery negative (-) cable and the fuel pump electrical connector.

Turn the ignition switch ON and the engine stop switch to RUN. The fuel pump operates for 2 seconds when the ignition switch is turned ON/stop switch set to RUN. Repeat five times so that the total measuring time is 10 seconds.

**Fuel pump flow at 12 V:** 55.6 cm<sup>3</sup> (1.88 US oz, 1.96 Imp oz) minimum/10 seconds

If fuel flow is less than specified, inspect for the following:

- Clogged fuel hose
- Clogged fuel filter
- Defective fuel pump unit

To check the fuel filter without removing the pump proceed as follows:

Siphon fuel from the tank until only ONE segment is shown on the fuel gauge, then recheck fuel flow. If the flow is above specification, check for other malfunctions. If the flow is still under specification, replace the fuel filter.

## Fuel Pump Removal

Remove most or all of the fuel in the tank with a vacuum pump before attempting to remove the fuel pump.





Remove the fuel tank. See the [Fuel Tank](#) <sup>[1]</sup>topic for more information.

Invert the fuel tank on the workbench. Pad the bench and block the tank in place so it doesn't move around as you're working on it.



Clean the area around the fuel tank to prevent contaminating the system once the tank is opened. Using a 10 mm socket and a crossing pattern, loosen the four pump setting plate nuts a few turns at a time.



Once fully loosened, remove the nuts and lift the setting plate off the pump and tank.

Note: Take note of the direction the pump and the setting plate are both facing before removal for installation purposes.



Remove the fuel pump and fuel pump seal. Carefully guide the fuel level sensor arm out of the fuel tank.





Inspect the fuel pump plate and replace the seals (inner and outer packing) with new items on assembly.

## Fuel Level Sensor

Set the multimeter to read ohms of resistance.



Connect the ohmmeter to the fuel pump terminals (circle) for the Black and Red wires on the pump (which correspond to the terminals for the Green and Yellow wires respectively in the bike harness).

Measure the resistance with the float in the full and empty positions.

**Fuel Level Sensor Resistance – FULL (float up):** 6 – 10  $\Omega$

**Fuel Level Sensor Resistance – EMPTY (float down):** 380 – 400 ohms  $\Omega$

Replace the fuel level sensor if the resistance is out of specification.

## Fuel Pump Overhaul

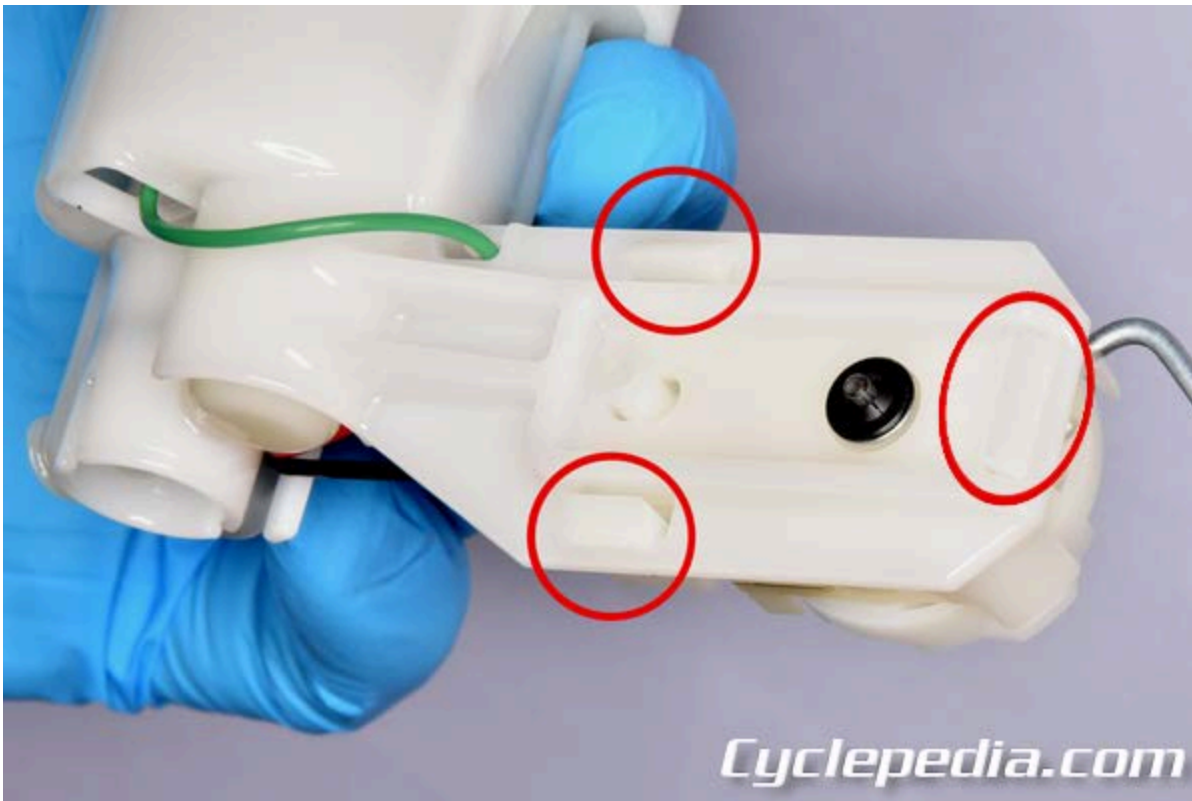


Remove the pump from the tank as detailed earlier in this section. To prevent dirt or contaminants to enter and damage the fuel pump always clean it before overhaul. Also make sure the work area is clean and free of dirt or debris which could have the same effect.

Note: Some of the following photos were taken using another Honda model with a similar, but not completely identical pump. Any significant differences will be pointed out in the accompanying text.

The fuel level sensor can be removed for access to clean or replace the filter as necessary.



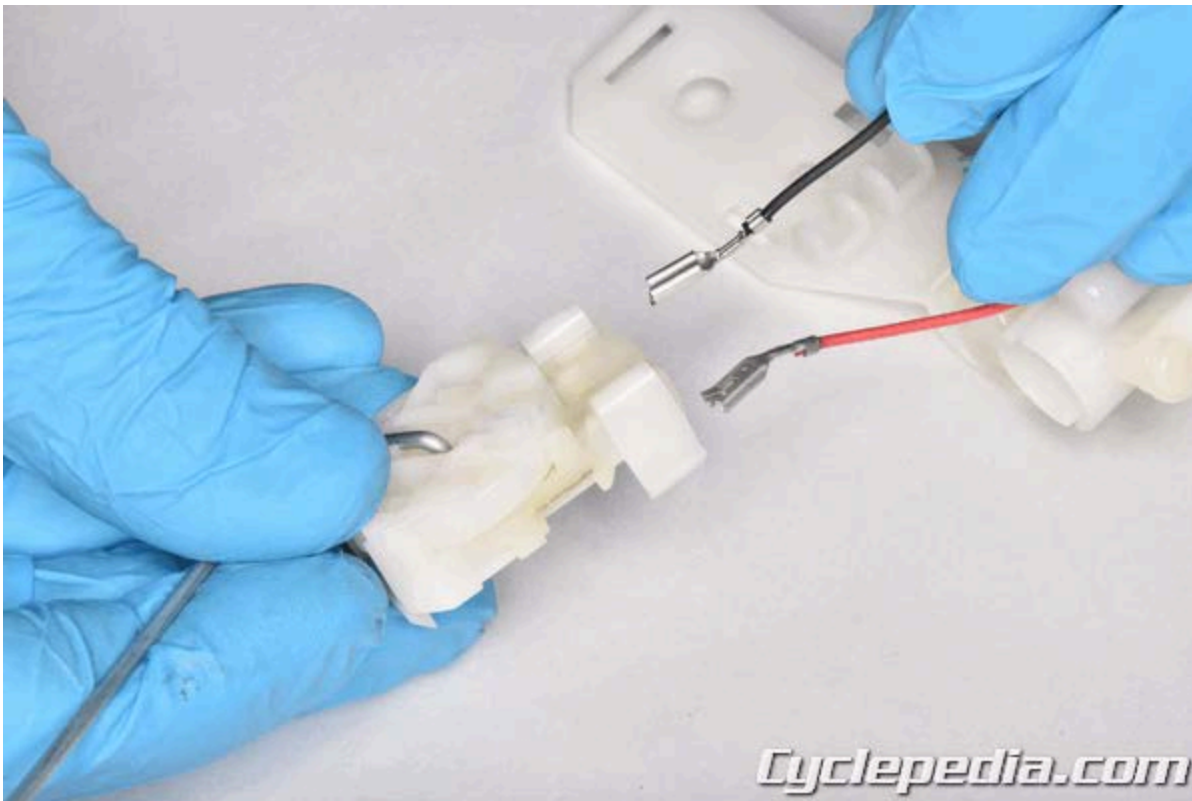


Squeeze and push the tabs on the back of the level sensor to release it from the pump assembly.

Note: The tab locations may vary.



Pull the level sensor back for access to the wiring.



Only disconnect the wires from the level sensor if the sensor itself is going to be replaced.

Note: If the Black and Red sensor wires are disconnected the sensor and wires should be replaced.



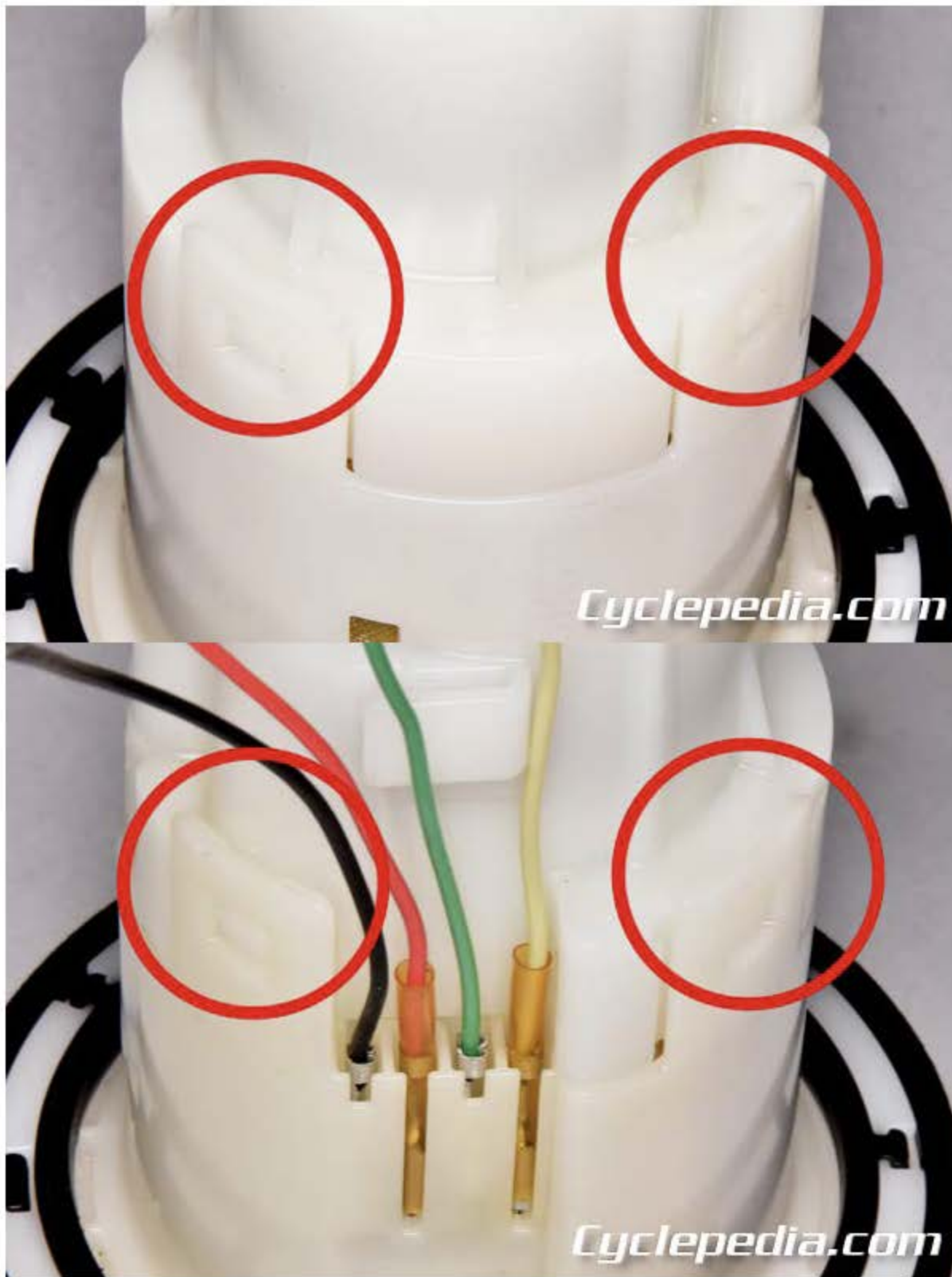
Unplug the pump wiring from the terminals.





Release the wiring from the guide.

Note: Note the wiring locations and remove them from the case. The fuel pump and sensor wires should always be replaced to ensure safety.



There are four tabs that secure the upper pump case to the lower case.





Release the four hooks by inserting four special fuel pump case remover tools. If those tools are not available four screwdrivers or small tapered pry tools can be used as a substitute (see the accompanying photo).

**Special Tool – Fuel Pump Case Remover:** 070MF-KVS0300



Once the hooks are released carefully separate the upper and lower case.



Inspect the condition of the O-rings in the upper case.



But it's normally best to remove and replace the O-rings regardless of appearance.

Note: Leaky O-rings on the pump assembly could lead to reduced performance or FI system problems. Why risk it for a few O-rings.





Check the condition of the fuel filter element.



Remove the element for cleaning or replacement.

Note: Clean the filter using only clean gasoline. Do not use solvents or commercially available carburetor cleaners.



Remove the O-ring from the pump inlet for inspection or replacement.



Remove the rubber seal from the pump inlet.





Remove the pump from the mounting bracket.

Replace components as needed and available. Before assembly check the fuel pump unit for dirt. Clean the unit as needed with compressed air, but be sure not to blow into the fuel pump unit.



Position the mounting bracket, a new rubber seal, and a new O-ring to the bottom of the pump. Install either a cleaned or new filter over the O-ring and seal on the pump inlet.

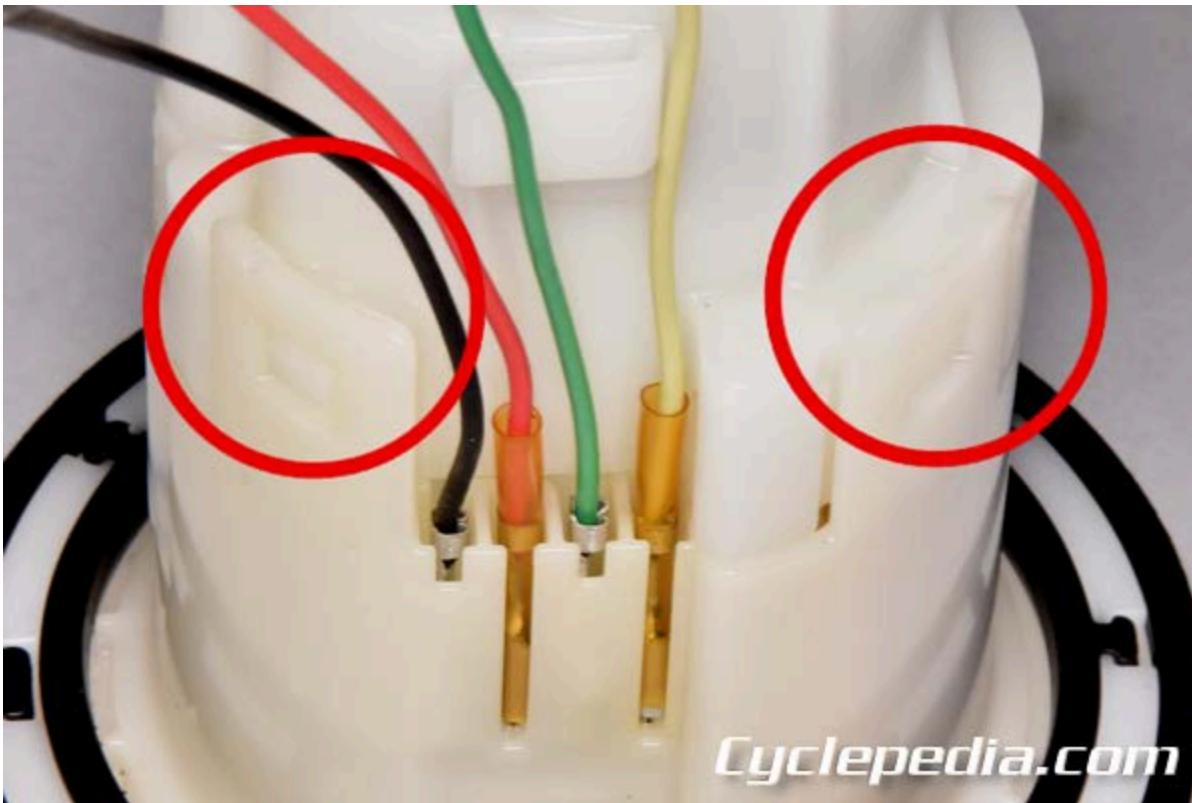


Install a pair of new O-rings in the upper pump cover.

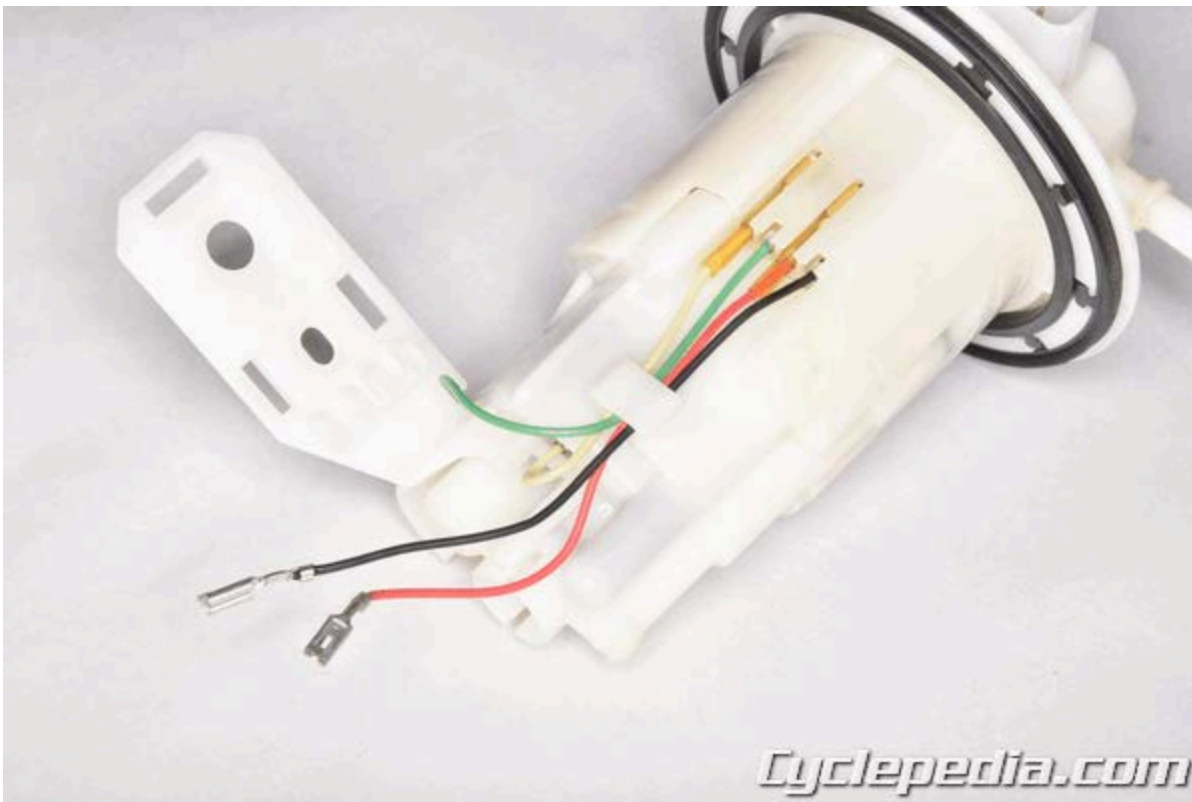


Carefully align and join the upper and lower covers as shown.





Seat the four hooks that secure the upper and lower covers.



Install the new pump assembly wires as noted and route the wiring through the guide tab.



Connect the new pump wiring as shown (or as noted if it differed).



Connect the new sensor wiring as shown.





Install the sensor to the mounting bracket and seat the retaining tabs.



**CAUTION:** Make sure none of the wires are pinched or bent too tightly which could lead to wire or insulation damage and failure.

## Fuel Pump Installation



Replace the fuel pump packing and dust seal with new items to ensure safe and leak free operation. Align the outer packing tab with the pump case tab.

Note: Make sure there is no dirt or debris on the pump or tank mounting flange. The presence of debris there could pinch the new seal allowing a leak when returned to service. Apply a light coating of engine oil to the packing and dust seal area on the tank.



Insert the fuel level sensor float arm, then carefully lower the pump assembly into the fuel tank. Align and install the setting plate as well.

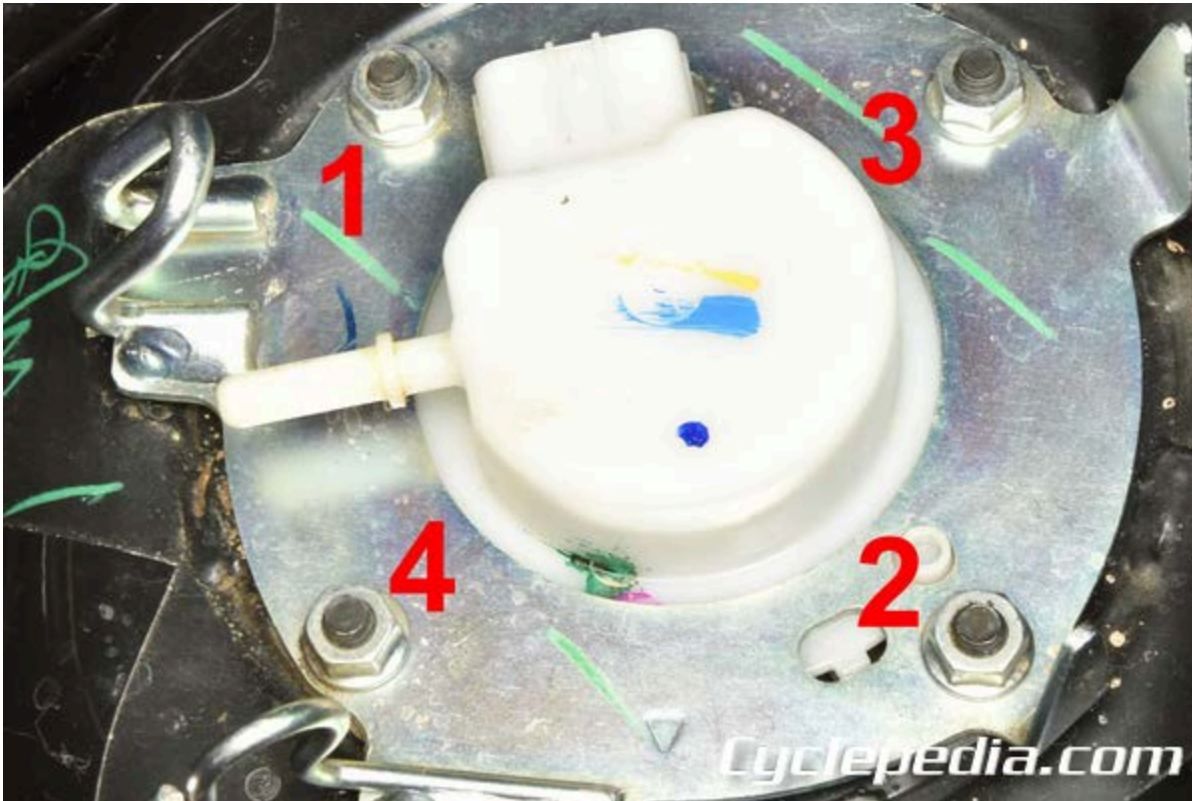




Make sure the pump is positioned as shown, so the fuel line joint is pointing the opposite direction from the fittings for the breather and drain hoses.



Install the setting plate as shown with the triangular mark on the plate (arrow) facing the side of the tank with the dimple mark. Check the pump and dust seal installation by looking through the cutout near the triangular mark. The dust seal should be seated and a small tab of the pump housing should be visible through the setting plate right by the locating pin and one of the mounting nuts (circle).



Install the four fuel pump setting plate nuts and tighten to specification using a 10 mm socket and the crossing pattern shown.

**Fuel pump setting plate nut (in a crossing sequence):** 12 N-m (1.2 kgf-m, 9 ft-lb)

Install the fuel tank. See the Fuel Tank <sup>[1]</sup>topic for more information.  
URLs in this post:

[1] Fuel Tank: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/fuel-tank/>

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## - Honda CRF300L Service Manual

### Throttle Body

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### Suggested Tools and Supplies

#2 Phillips Screwdriver

8 mm Socket

T25 Torx Driver

Ratchet

Torque Wrench

Nitrile Gloves

Safety Glasses

## Removal

Remove or perform the following for access:

Seat <sup>[1]</sup>

Bodywork <sup>[2]</sup> (side covers and fuel tank shrouds)

Fuel Tank <sup>[3]</sup>

Bodywork <sup>[2]</sup> (rear cowl/upper fender, rear fender/tag mount assembly)

Exhaust System <sup>[4]</sup> (remove the muffler)

Helmet Holder <sup>[5]</sup>

Bodywork <sup>[2]</sup> (rear lower fender)

Air Box <sup>[6]</sup>



Loosen the lock nut on the upper throttle body cable and turn the adjuster to introduce sufficient free play into the cable so it can be disconnected. Next loosen the nut on the lower throttle cable so it can be disconnected. See the Throttle Free Play <sup>[7]</sup> topic for more information.



Free both cable barrels from the throttle drum.



Either remove the fuel injector from the throttle body complete with wiring and fuel line intact, or disconnect them and leave the injector in place as desired. See the [Fuel Injector](#) <sup>[8]</sup> topic for more information.





Unplug the wiring for the IACV.



Pull back the rubber boot and unplug the wiring from the sensor unit.





Loosen the band on the throttle body side of the insulator using a #2 Phillips driver or an 8 mm socket.



Carefully free the throttle body from the insulator and remove it completely from the engine.

## **Disassembly**

Notes:



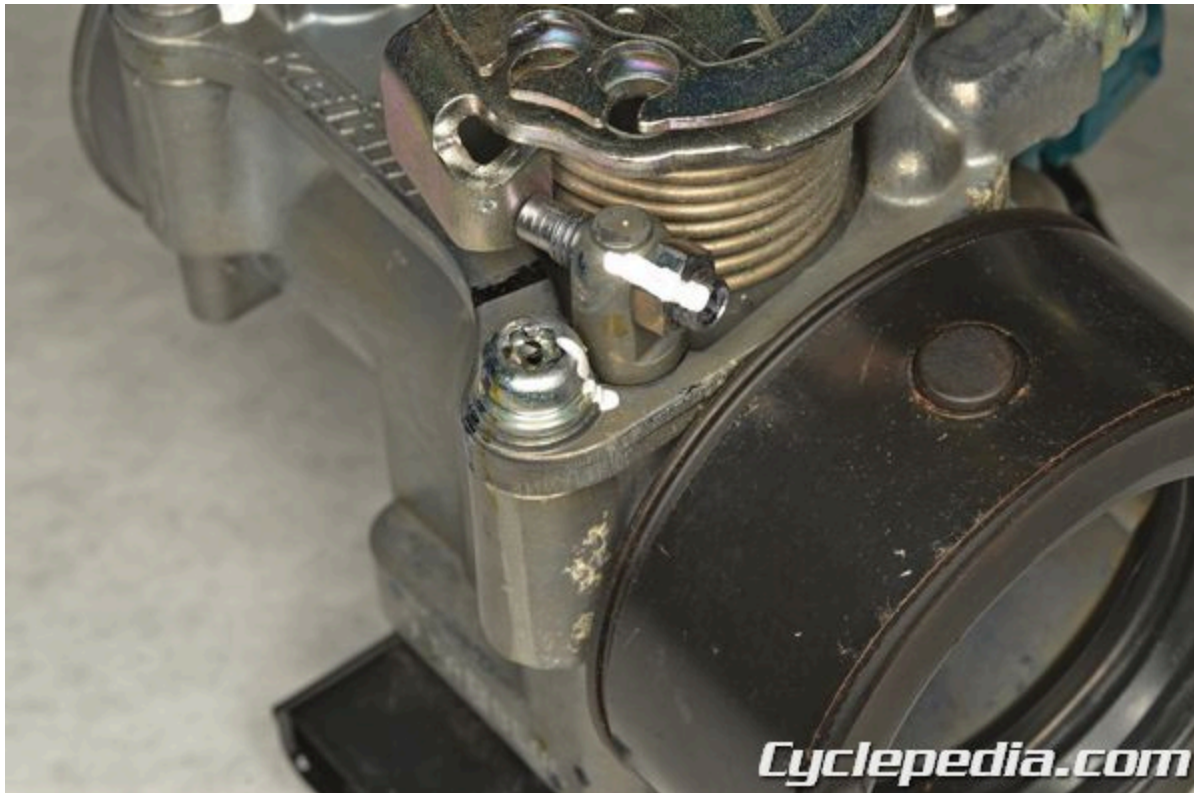
Always clean around the throttle body before removing any components to prevent dirt and debris from entering the air passage.

See the [IACV](#) <sup>[9]</sup> topic for information on the IACV.

See the [Fuel Injector](#) <sup>[8]</sup> topic for information on the fuel injector.



Do not snap the throttle valve from full open to full close after the throttle cable has been removed. It may cause incorrect idle operation.



Do not loosen or tighten the white painted fasteners of the throttle body. Loosening or tightening it can cause throttle valve and idle control failure



Do not remove the sensor unit unless it is replaced. The throttle body/sensor unit is factory pre-set. Do not disassemble in a way other than shown in this manual.



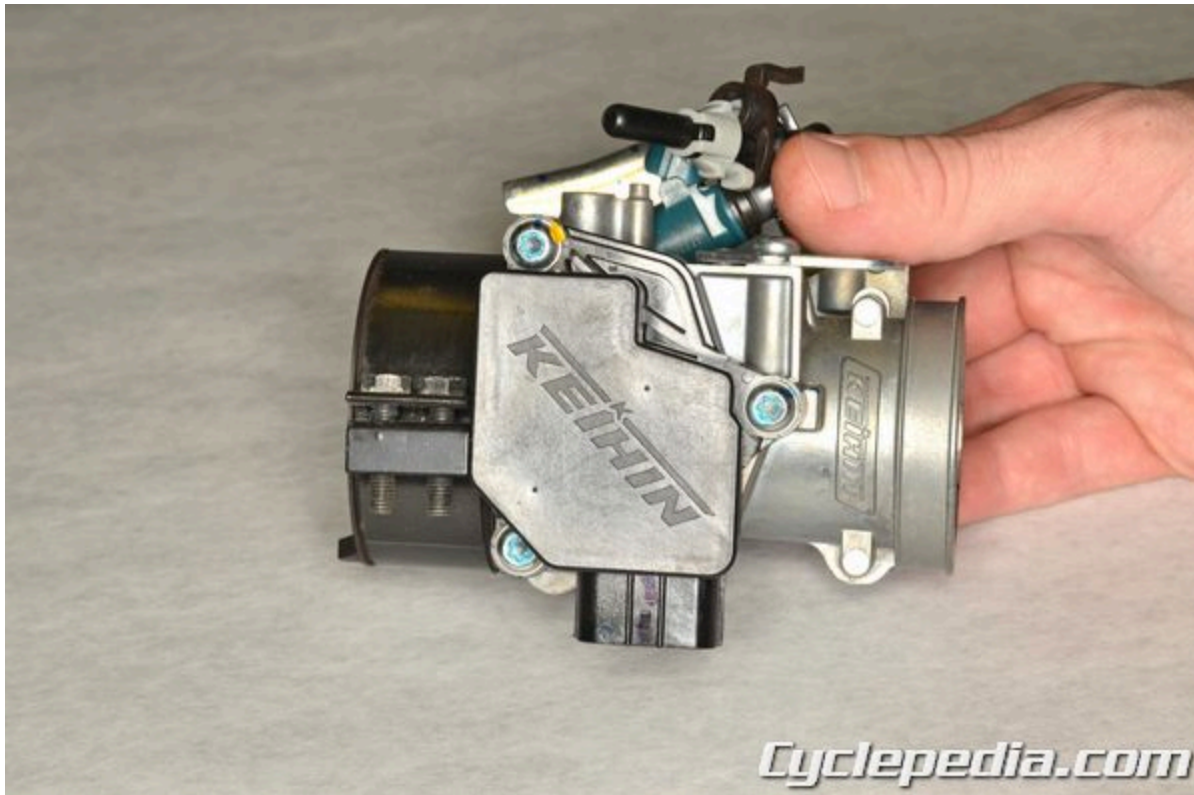
If the throttle cable bracket requires service remove the two screws using a #2 Phillips screwdriver. During installation be sure to tighten the screws to specification.



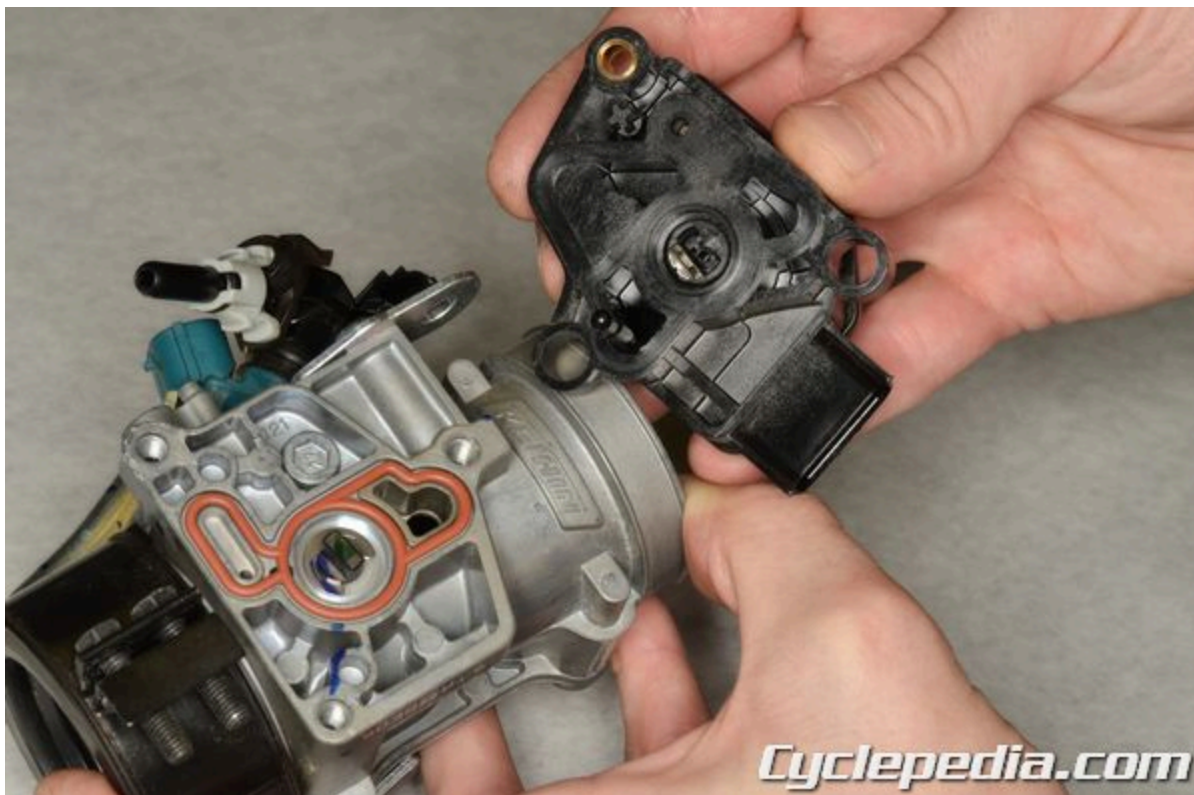
**Throttle cable holder screw:** 3.4 N-m (0.3 kgf-m, 2.5 ft-lb)

## Sensor Unit Service

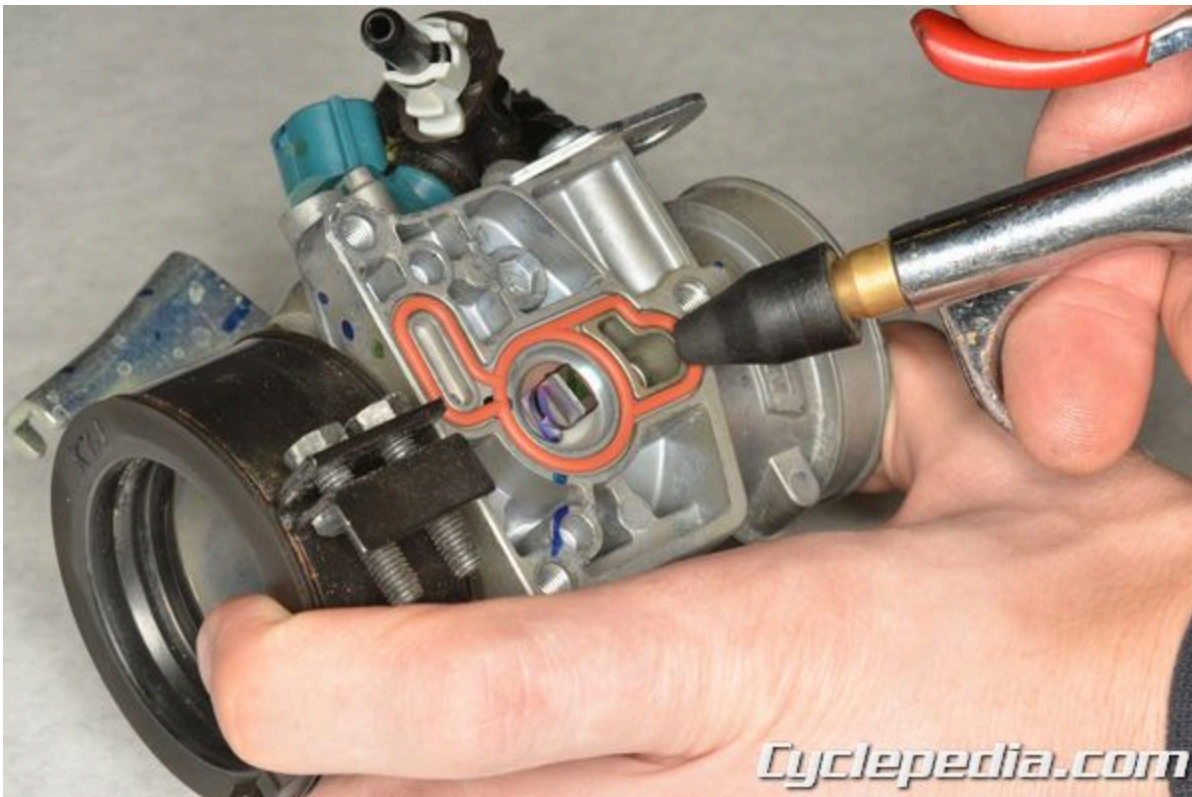
The sensor unit is a combination TPS and IAT sensor assembly affixed to the side of the throttle body.



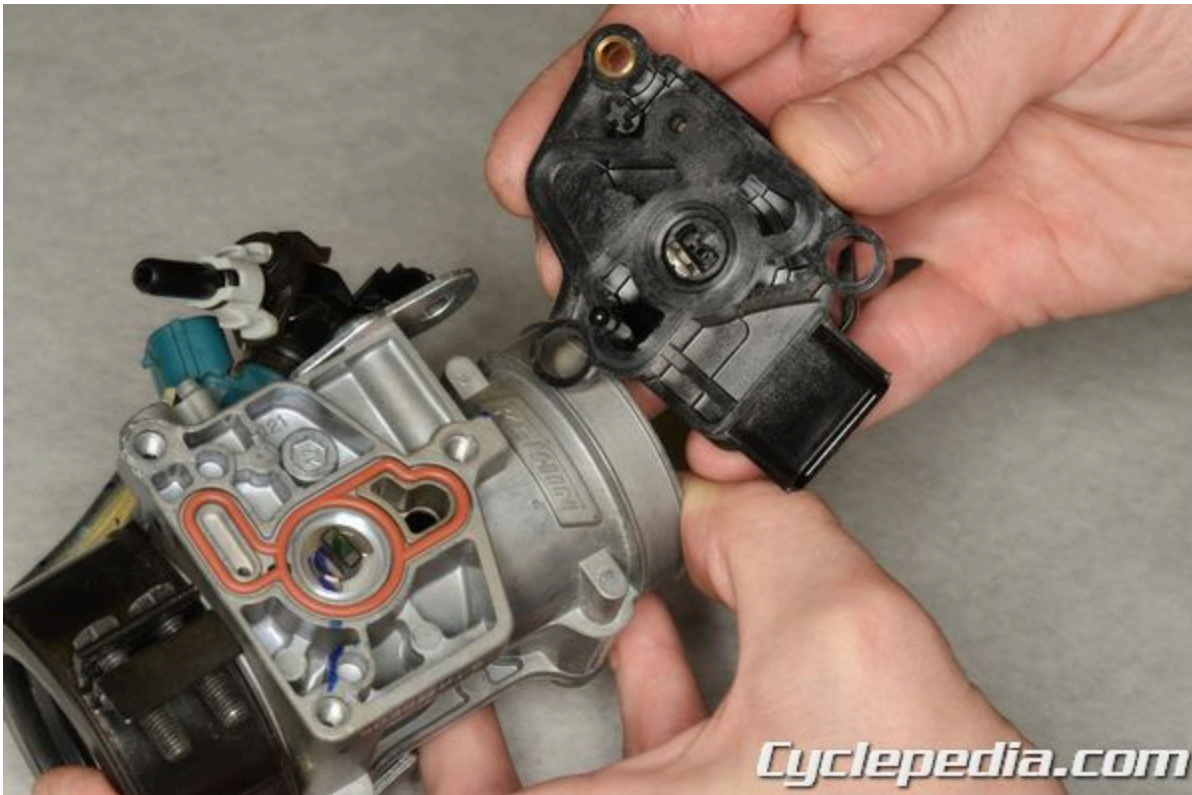
Loosen the sensor unit screws with a T25 Torx driver.



Remove the sensor unit.



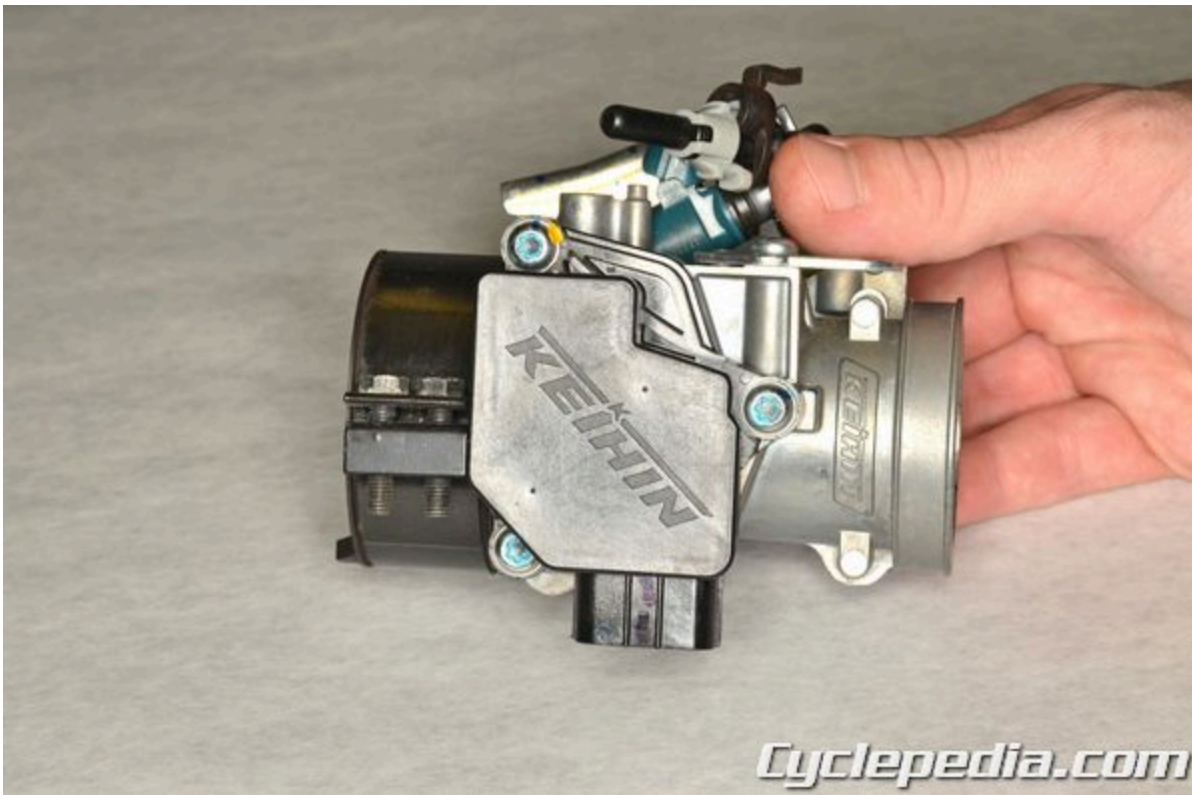
Clean the air passage of the throttle body using compressed air. Do not use a wire to clean the passages.



Install a new O-ring seal with the sensor unit. When installing the sensor unit to the throttle body, align the clip of the TP sensor with the boss of the throttle valve, and the IAT sensor with the hole.

Note: Any time the sensor unit is removed/replaced or the throttle body assembly is replaced the TPS [10] Reset Procedure must be followed to ensure proper operation.



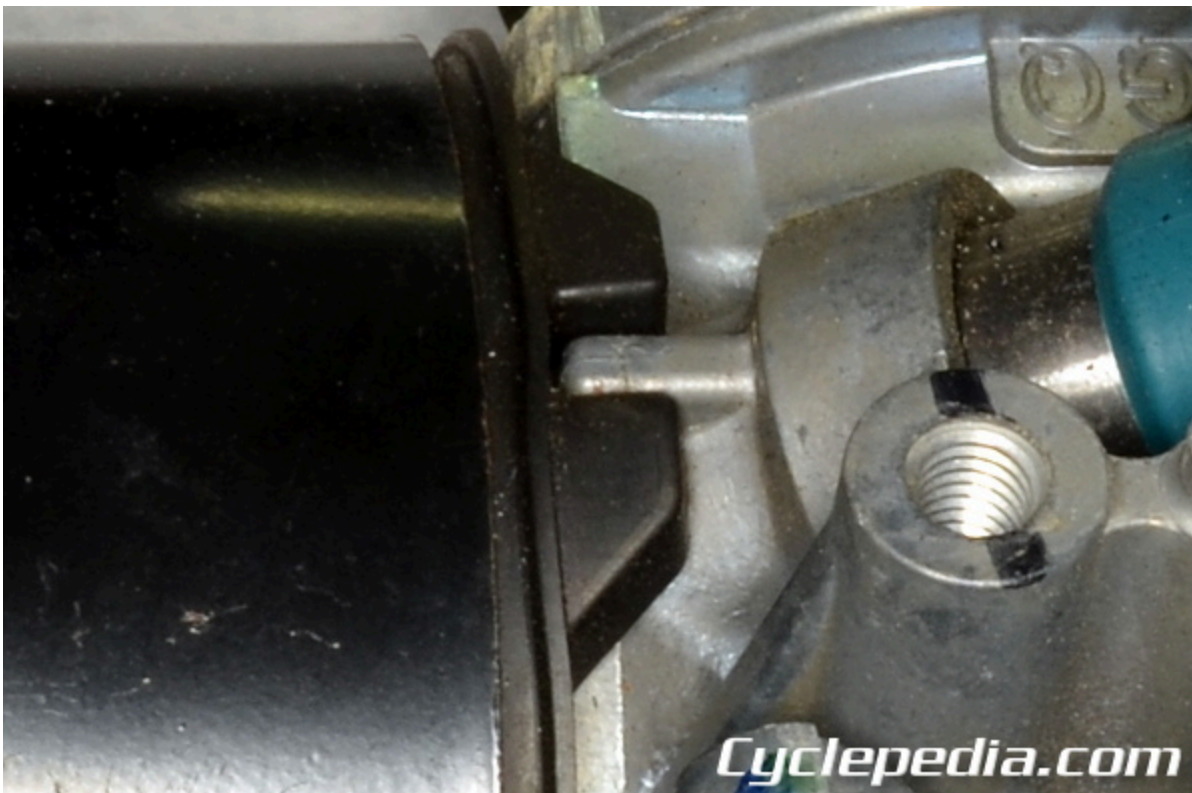


Install the sensor unit screws and tighten them to specification with a T25 Torx driver.

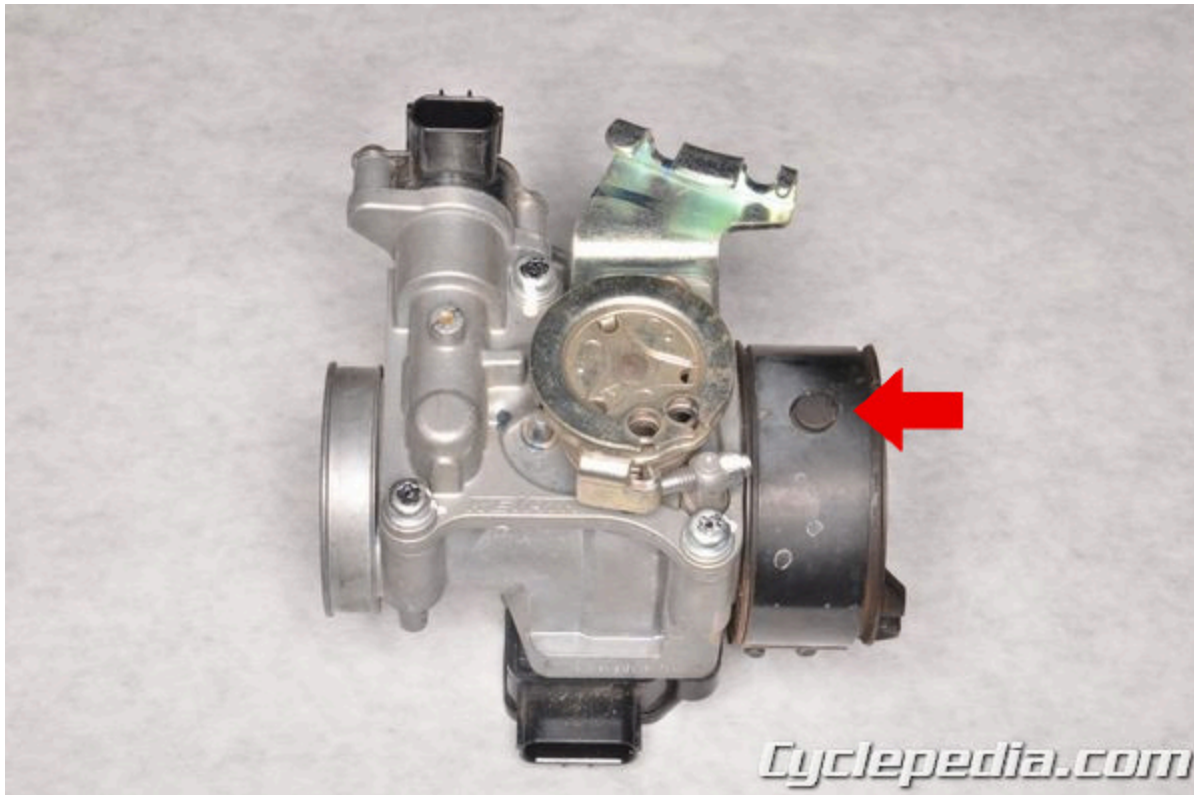
**Sensor unit Torx screw:** 3.4 N-m (0.3 kgf-m, 2.5 ft-lb)

## Assembly

If removed, install the IACV. See the [IACV](#) <sup>[9]</sup> topic for information.



If the insulator was removed from the cylinder head with the throttle body, align the tab on the throttle body with the cutout in the insulator band and fully seat the throttle body into the insulator.



Also align the insulator band hole with the insulator boss. Tighten the throttle body side insulator band clamp screw securely using a #2 Phillips driver or an 8 mm socket.

## Installation





Install the throttle body to the engine and seat it in the insulator (or if the insulator was removed with the throttle body make sure the insulator is secure on the cylinder head). In either case the tabs on the throttle body and head must seat in the cutouts on opposite sides of the insulator (throttle body side on top, cylinder head side on the bottom).



Tighten the band clamp screw securely using a #2 Phillips driver or an 8 mm socket.

Note: When properly tightened the cylinder head side insulator band should have about 7 mm of thread between the ends of the band clamps and the throttle body side insulator band should have about 12 mm of thread between the ends of the band clamps.



Reconnect the wiring for the sensor unit and cover with the rubber boot.



Reconnect the wiring for the IACV.





Either install the fuel injector to the throttle body with wiring and fuel line, or reconnect them if the injector was already in place. See the [Fuel Injector](#) <sup>[8]</sup> topic for more information.



Reconnect the throttle cables to the drum.



Adjust the throttle cables and tighten the lock nuts to specification. See the [Throttle Free Play](#) <sup>[7]</sup> topic for more information.

**Throttle cable lock nut (throttle body side):** 3.0 N-m (0.3 kgf-m, 2.2 ft-lb)

Note: Any time the sensor unit is removed/replaced or the throttle body assembly is replaced the [TPS](#) <sup>[10]</sup> Reset Procedure must be followed to ensure proper operation.

Install the following components:

[Air Box](#) <sup>[6]</sup>

[Bodywork](#) <sup>[2]</sup> (rear lower fender)

[Helmet Holder](#) <sup>[5]</sup>

[Exhaust System](#) <sup>[4]</sup> (remove the muffler)

[Bodywork](#) <sup>[2]</sup> (rear cowl/upper fender, rear fender/tag mount assembly)

[Fuel Tank](#) <sup>[3]</sup>

[Bodywork](#) <sup>[2]</sup> (side covers and fuel tank shrouds)

[Seat](#) <sup>[1]</sup>

URLs in this post:

[1] Seat: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/seat/>

[2] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

[3] Fuel Tank: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/fuel-tank/>

[4] Exhaust System: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/exhaust-system/>

[5] Helmet Holder: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/helmet-holder/>

[6] Air Box: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/airbox/>



[7] Throttle Free Play: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/throttle-free-play/>

[8] Fuel Injector: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/fuel-injector/>

[9] IACV: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/iacv/>

[10] TPS: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/tps/>

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## - Honda CRF300L Service Manual

IACV

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

### Suggested Tools and Supplies

T20 Anti Tamper Torx Driver

Ratchet

Torque Wrench

Nitrile Gloves

Safety Glasses

## Inspection

Lift and support the fuel tank. See the [Fuel Tank](#) <sup>[1]</sup> topic for more information.



The IACV (idle air control valve) is a step motor installed on the throttle body and is operated by the ECM. When the ignition switch is turned ON and engine stop switch is set to RUN, the IACV operates for a few seconds.

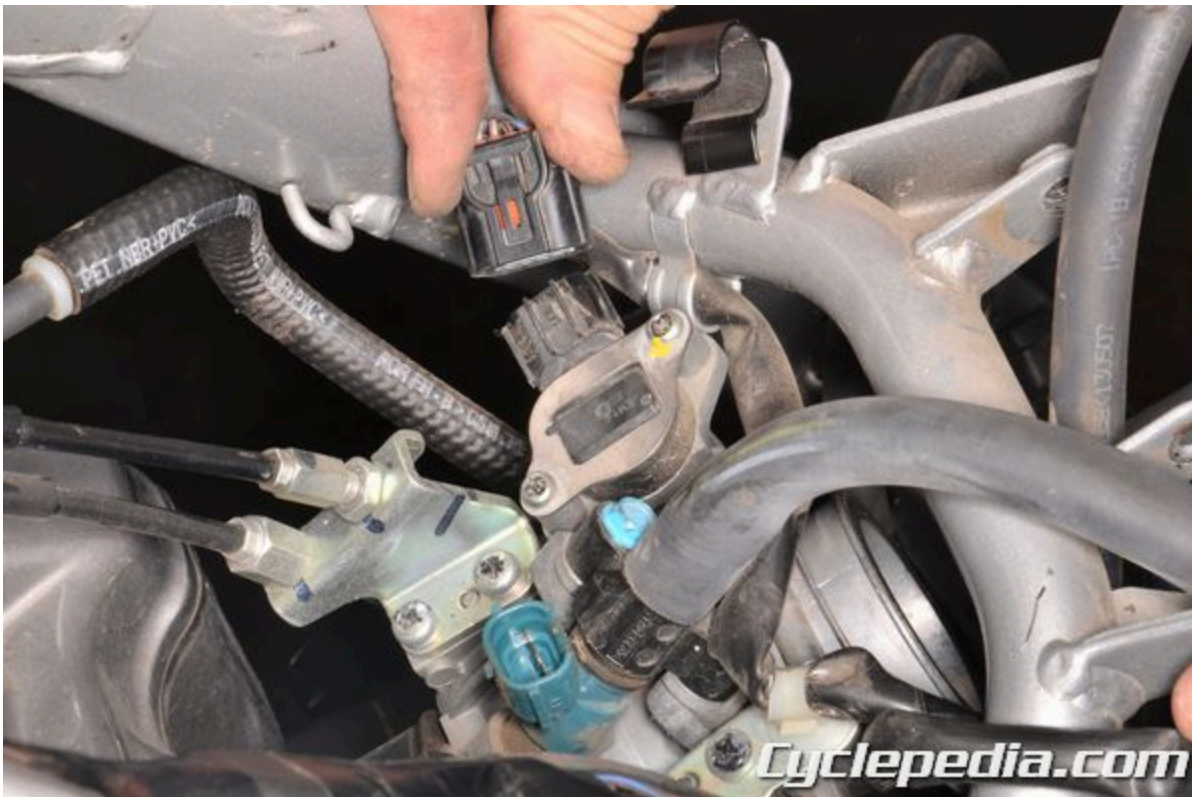
Check the step motor operating (a buzzing or beeping) sound with the ignition switch turned ON and engine stop switch set to RUN.

If the idle is unstable, remove the IAC valve and check condition of the O-ring. With the valve removed from the throttle body temporarily reconnect the wiring and turn the ignition switch ON (with the engine stop switch set to RUN). The valve slide should move back and forth as the valve is initialized.

## Removal

Remove the fuel tank for access. See the [Fuel Tank](#) <sup>[1]</sup> topic for more information.

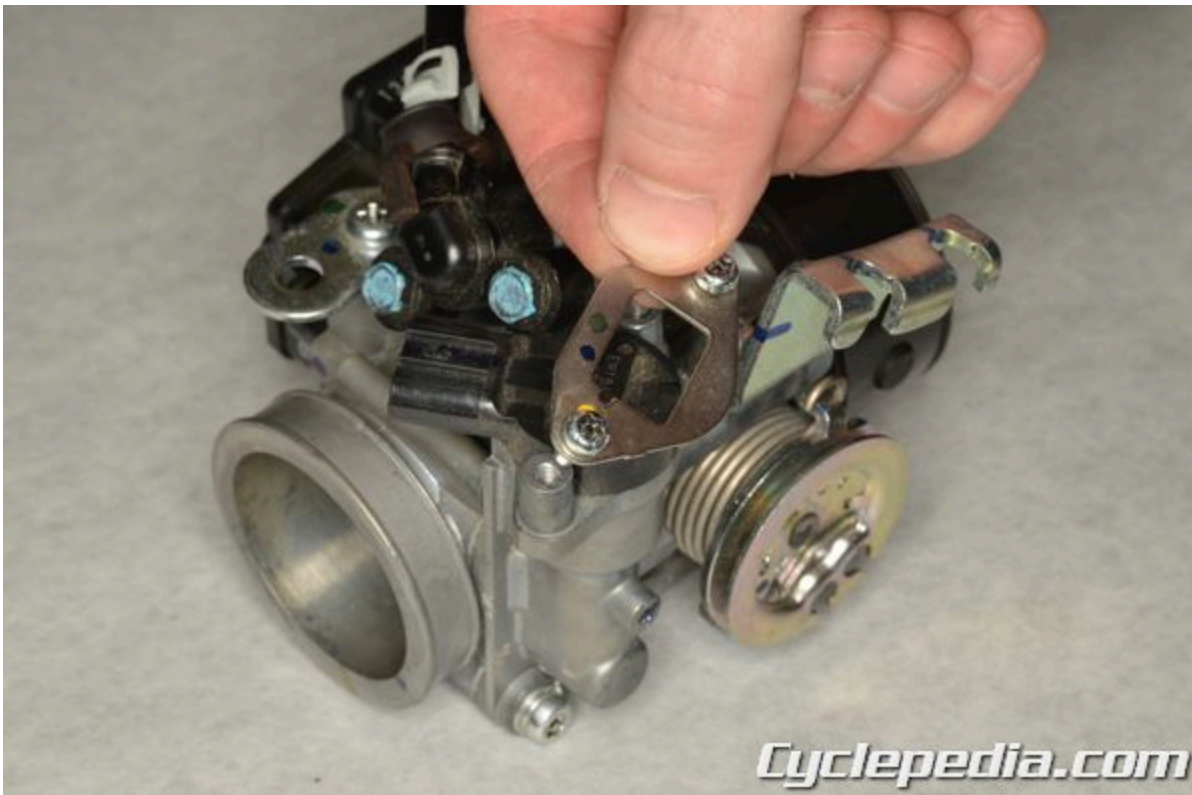




Unplug the IACV connector.



Loosen the IACV screws with a T20 anti tamper Torx socket.



Remove the IACV screws and plate.



Remove the IACV and O-ring.





Replace the O-ring with a new item on assembly.



Inspect the IACV for damage and wear.

## **Installation**

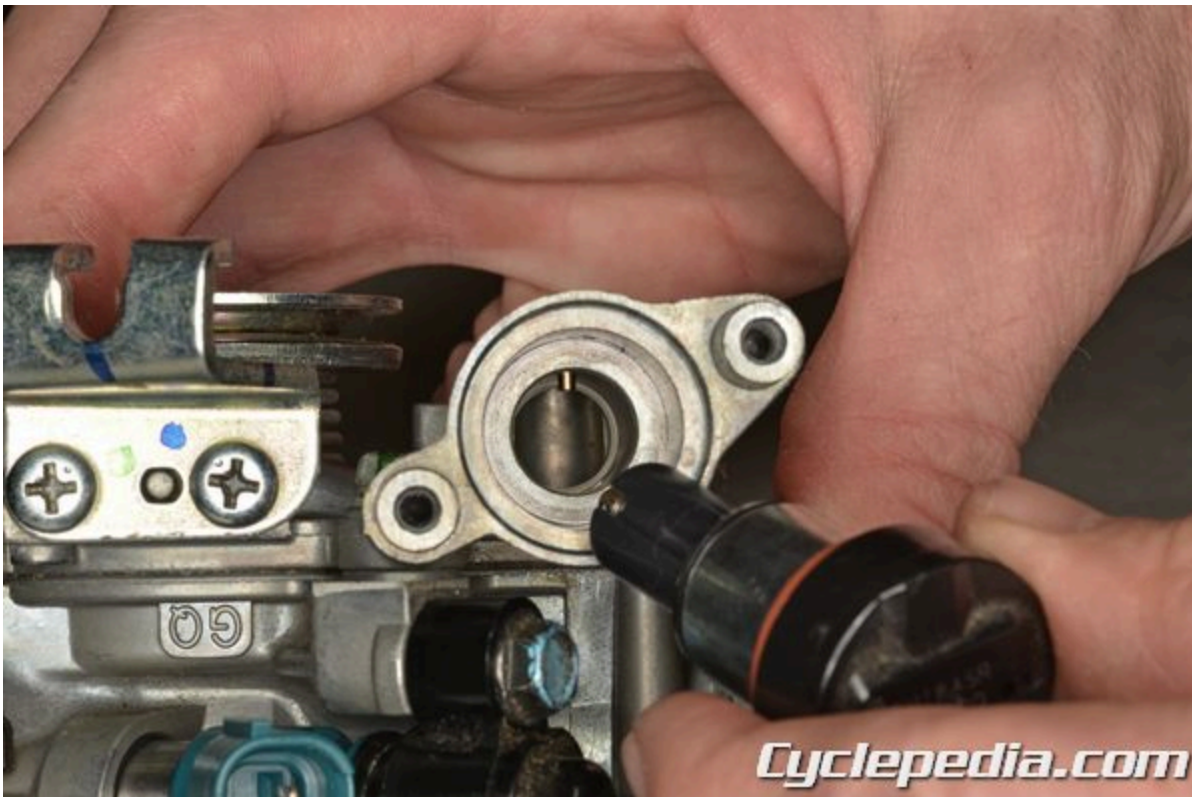


Turn the slide valve clockwise until lightly seated on IACV.



Install the IACV with a new O-ring.





When installing the IACV align the valve slot with the housing pin.



Install the IACV set plate aligning the slot in the plate with the tab on the IACV. Install the screws tighten them to specification with a T20 anti tamper Torx socket.

**IACV setting plate Torx screw:** 2.1 N-m (0.2 kgf-m, 1.5 ft-lb)



Plug in the IACV connector.

Install the fuel tank. See the [Fuel Tank](#) <sup>[1]</sup> topic for more information.  
URLs in this post:

[1] Fuel Tank: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/fuel-tank/>

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TPS

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

### **Suggested Tools and Supplies**

Jumper Wire  
Nitrile Gloves  
Safety Glasses



The TP sensor is incorporated into the sensor unit on the throttle body (along with the IAT).

Do not remove the sensor unit unless absolutely necessary. See the [Throttle Body](#) <sup>[1]</sup> topic for more information on the sensor unit removal and installation.

## **Reset Procedure**

Clear the DTC's. See the [FI System Self-Diagnostics](#) <sup>[2]</sup> topic for more information.

Note: The TP sensor reset mode will not function if there are any DTCs stored in memory.

Turn the ignition switch to the OFF position.



Access the DLC in the tray above the tool box by removing the seat. See the [Seat](#) <sup>[3]</sup> topic for more information.



Remove the dummy connector (cover) from the DLC.

Short the Blue/Black and Green wires of the DLC with the special tool.

**Special Tool – SCS Service connector:** 070MZ-0010300

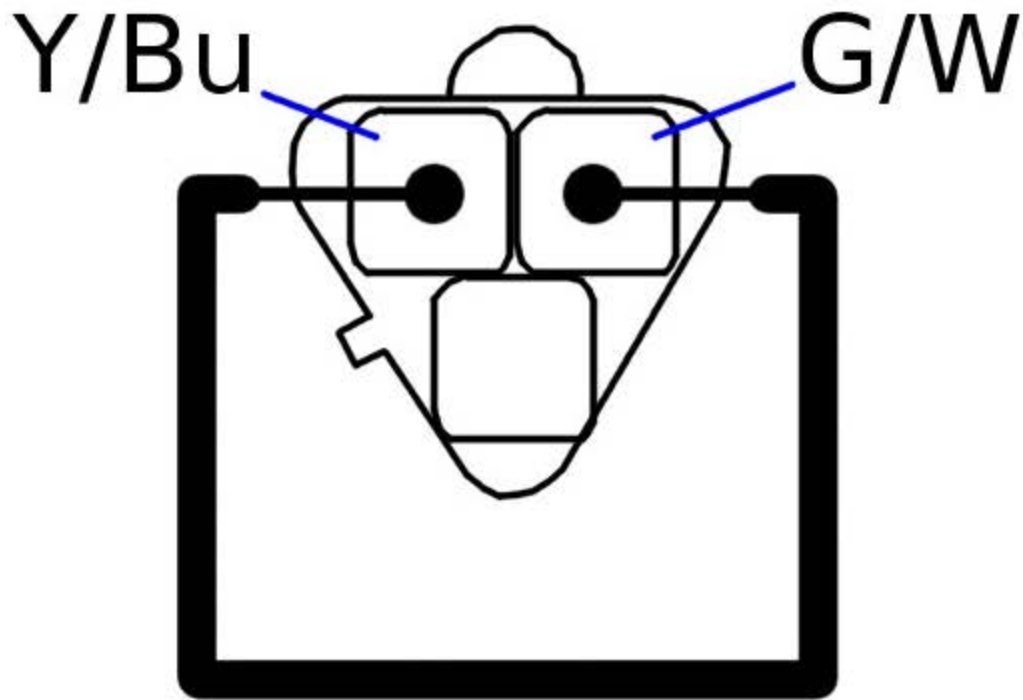




Locate the ECT sensor connector on the back side of the cylinder head (just in front of the EVAP canister on models so equipped).



Unplug the ECT connector.



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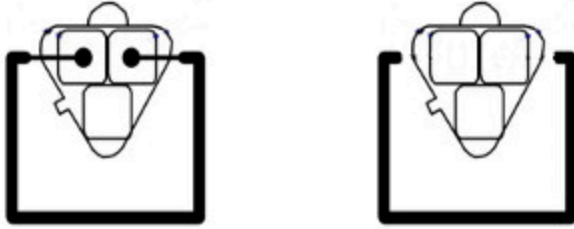
Short the the ECT sensor 3P connector terminals at the wire harness side of the ECT sensor connector with a jumper wire.

Connection: Yellow/blue wire to Green/white

Turn the ignition switch ON and the engine stop switch to RUN.

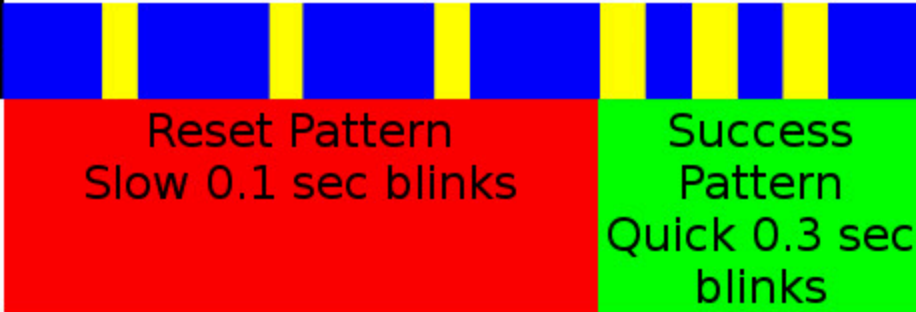


Disconnect the ECT jump  
within 10 seconds



MIL ON ●

MIL OFF ●



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The Check Engine Light (MIL) should be blinking slowly. Disconnect the ECT jump within 10 seconds.

After the ECT jumper wire is disconnected the MIL should begin blinking quickly to indicate the throttle closed position has been reset.

Note: If the jumper wire is connected for more than 10 seconds the MIL will stay ON (unsuccessful pattern). Repeat the procedure if the process is not a success.

Turn the ignition switch to the OFF position.



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Plug in the ECT sensor connector.

Check the engine idle speed to ensure proper operation. See the [Engine Idle Speed](#) <sup>[4]</sup> topic for more information.

Plug the dummy connector back into the DLC and tuck it back in place. Install and bodywork removed for access.

URLs in this post:

[1] Throttle Body: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/throttle-body/>

[2] FI System Self-Diagnostics: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/self-diagnostics/>

[3] Seat: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/seat/>

[4] Engine Idle Speed: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/engine-idle-speed/>

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Troubleshooting

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

**Suggested Tools and Supplies**

- Nitrile Gloves
- Safety Glasses

**General Troubleshooting**

**Intermittent Failure**

The term “intermittent failure” means a system means a trouble that comes and goes so the system may have *had* a failure, but it checks OK now. If the MIL does not come on, check for poor contact or loose pins at all connectors related to the circuit that of the troubleshooting. If the MIL was on, but then went out, the original problem may be intermittent.

**Opens and Shorts**

“Opens” and “Shorts” are common electrical terms. An open is a break in a wire or at a connection. A short is an accidental connection of a wire to ground or to another wire. In simple electronics, this usually means something will not work at all. With ECMs this can sometimes mean something may work, but not the way it’s supposed to.

**If the MIL has come on**

Refer to DTC instructions – [FI System Self-Diagnostics](#) <sup>[1]</sup>

**If the MIL did not stay on**

If the MIL did not stay on, but there is a driveability problem, check the FI symptom troubleshooting chart below.

**FI Symptom Troubleshooting**

When the motorcycle has one of these symptoms, check the DTC or MIL blinking, refer to the DTC index and begin the appropriate troubleshooting procedure. If there are no DTC/MIL blinking stored in the ECM memory, do the diagnostic procedure for the symptom, in sequence listed below, until you find cause.

Engine cranks but won’t start (No DTC and MIL blinking)	1. Inspect the spark plug condition – <a href="#">Spark Plug</a> <sup>[2]</sup>	No fuel to fuel injector
	2. Inspect the ignition system – <a href="#">Ignition System</a> <sup>[3]</sup>	Clogged fuel filter Pinched or clogged fuel feed hose
	3. Inspect the cylinder compression – <a href="#">Compression Check</a> <sup>[4]</sup>	Faulty fuel pump Faulty fuel pump circuits Intake air leak
	4. Inspect the fuel supply system – <a href="#">Fuel Pump</a> <sup>[5]</sup>	Contaminated/deteriorated fuel Faulty fuel injector
	5. Inspect the IACV – <a href="#">IACV</a> <sup>[6]</sup>	
Engine cranks but won’t start (No fuel pump operation sound when turning the ignition ON)	1. ECM power/ground circuits malfunction – <a href="#">ECM</a> <sup>[7]</sup>	Open circuit in the power input and/or ground wire of the ECM
	2. Inspect the fuel supply system – <a href="#">Fuel Pump</a> <sup>[5]</sup>	Faulty bank angle sensor or related circuit

		Faulty engine stop switch or related circuit
Engine stalls, hard to start, rough idling	1. Inspect the engine idle speed – <u>Engine Idle Speed</u> [8]	
	2. Inspect the IACV – <u>IACV</u> [6]	Restricted fuel feed hose
	3. Inspect the fuel supply system – <u>Fuel Pump</u> [5]	Contaminated/deteriorated fuel Intake air leak
	4. Inspect the battery charging system – <u>Charging System</u> [9]	Faulty MAP sensor Restricted fuel tank EVAP/breather hose (as applicable)
	5. Inspect the ignition system – <u>Ignition System</u> [3]	
Afterburn when engine braking is used	1. Inspect the PAIR system – Emissions	–
Backfiring or misfiring during acceleration	2. Inspect the ignition system – <u>Ignition System</u> [3]	–
	Inspect the ignition system – <u>Ignition System</u> [3]	–
Poor performance (driveability) and poor fuel economy	1. Inspect the fuel supply system- <u>Fuel Pump</u> [5]	Faulty pressure regulator (fuel pump)
	2. Inspect the air cleaner element – <u>Air Filter Servicing</u> [10]	Faulty MAP sensor
	3. Inspect the ignition system – <u>Ignition System</u> [3]	Faulty fuel injector
Idle speed is below specifications or fast idle too low (No DTC and MIL blinking)	1. Inspect the engine idle speed – <u>Engine Idle Speed</u> [8]	–
	2. Inspect the IACV – <u>IACV</u> [6]	–
	3. Inspect the ignition system – <u>Ignition System</u> [3]	–
Idle speed is above specifications or fast idle too high (No DTC and MIL blinking)	1. Inspect the engine idle speed – <u>Engine Idle Speed</u> [8]	
	2. Inspect the throttle operation and free play – <u>Throttle Free Play</u> [11]	Faulty ignition system Intake air leak
	3. Inspect the IACV – <u>IACV</u> [6]	Engine top-end problem Air cleaner element condition
	4. Inspect the ignition system – <u>Ignition System</u> [3]	
MIL stays ON but no DTCs set, or MIL never comes ON at all	Inspect the MIL circuit	–
MIL stays ON at all (No DTC set)	1. Inspect the DLC circuit	–



URLs in this post:

- [1] FI System Self-Diagnostics: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/self-diagnostics/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/self-diagnostics/)
- [2] Spark Plug: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/spark-plug/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/spark-plug/)
- [3] Ignition System: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/ignition-system/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/ignition-system/)
- [4] Compression Check: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/compression-check/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/compression-check/)
- [5] Fuel Pump: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/fuel-pressure-regulator/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/fuel-pressure-regulator/)
- [6] IACV: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/iacv/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/iacv/)
- [7] ECM: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/ecu/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/ecu/)
- [8] Engine Idle Speed: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/engine-idle-speed/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/engine-idle-speed/)
- [9] Charging System: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/charging-system/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/charging-system/)
- [10] Air Filter Servicing: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/air-filter-servicing/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/air-filter-servicing/)
- [11] Throttle Free Play: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/throttle-free-play/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/throttle-free-play/)

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**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

**Suggested Tools and Supplies**

Nitrile Gloves

Safety Glasses

## **System Description**

### **Self-Diagnosis System**

The PGM-FI system is equipped with the self-diagnostic system. When any abnormality occurs in the system, the ECM turns on the MIL and stores a DTC in its erasable memory.

### **Fail-Safe Function**

The PGM-FI system is provided with a fail-safe function to secure a minimum running capability even when there is trouble in the system. When any abnormality is detected by the self-diagnosis function, running capability is maintained by pre-programmed value in the simulated program map. When any abnormality is detected in the fuel injector, the fail-safe function stops the engine to protect it from damage.

### **DTC**

The DTC is composed of a main code and a sub code and it is displayed as a hyphenated number when retrieved from the Honda MCS (Motorcycle Communication System) or other GST (Generic Scan Tool).

The alpha-numeric code displayed by the scan tool indicates both the main and sub code data.

The digits in front of the hyphen in parenthesis on the chart are the main code, they indicate the component of function failure. This is the only part of the code that can be displayed by flashing the MIL.

The digits behind the hyphen are the sub code, they detail the specific symptom of the component or function failure. These are only displayed on the scan tool.

For example, in the case of the TP sensor:

DTC P0122 (8 - 1) = (8 = TP sensor voltage) - (1 = lower than the specified value)

DTC P0123 (8 - 2) = (8 = TP sensor voltage) - (2 = higher than the specified value)

The MAP, ECT, TP and IAT sensor diagnosis will be made according to the voltage output of the affected sensor. If a failure occurs, the ECM determines the Function Failure, compares the sensor voltage output to a standard value, and then outputs the corresponding DTC to the MCS/GST.

For example:

If the input voltage line on the MAP sensor is opened, the ECM detects the output voltage is about 5 V, then the DTC P0108 (1-2), MAP sensor circuit high voltage will be displayed.

If the input voltage line on the TP sensor is opened, the ECM detects the output voltage is a near 0 V, then the DTC P0122 (8-1), TP sensor circuit low voltage will be displayed.

### **MIL Check**





When the ignition switch is turned ON and set the engine stop switch RUN the MIL will stay on for a few seconds, then go off. If the MIL does not come on, troubleshoot the MIL circuit. See the [Meter](#) <sup>[1]</sup> topic for more information.

### **MIL Blink Pattern**

If the Honda MCS or GST is not available, the DTC can be read from the ECM memory by the MIL blink pattern, but only in the most basic form of the code.

The number of MIL blinks is the equivalent the main code of the DTC (the sub code cannot be displayed by the MIL).

The MIL will blink when the SCS tool is used to initiate code readout. Follow the steps later in this section under Reading DTC with the MIL.

The MIL has two types of blinks, a long blink and short blink. The long blinking lasts for 1.3 seconds, the short blinking lasts for 0.3 seconds. One long blink is the equivalent of ten short blinks. For example, when two long blinks are followed by three short blinks, the MIL is 23 (two long blinks = 20 blinks, plus three short blinks = 3).

When the ECM stores more than one DTC, the MIL will indicate them by blinking in the order from the lowest number to highest number.

### **Current DTC / Stored DTC**

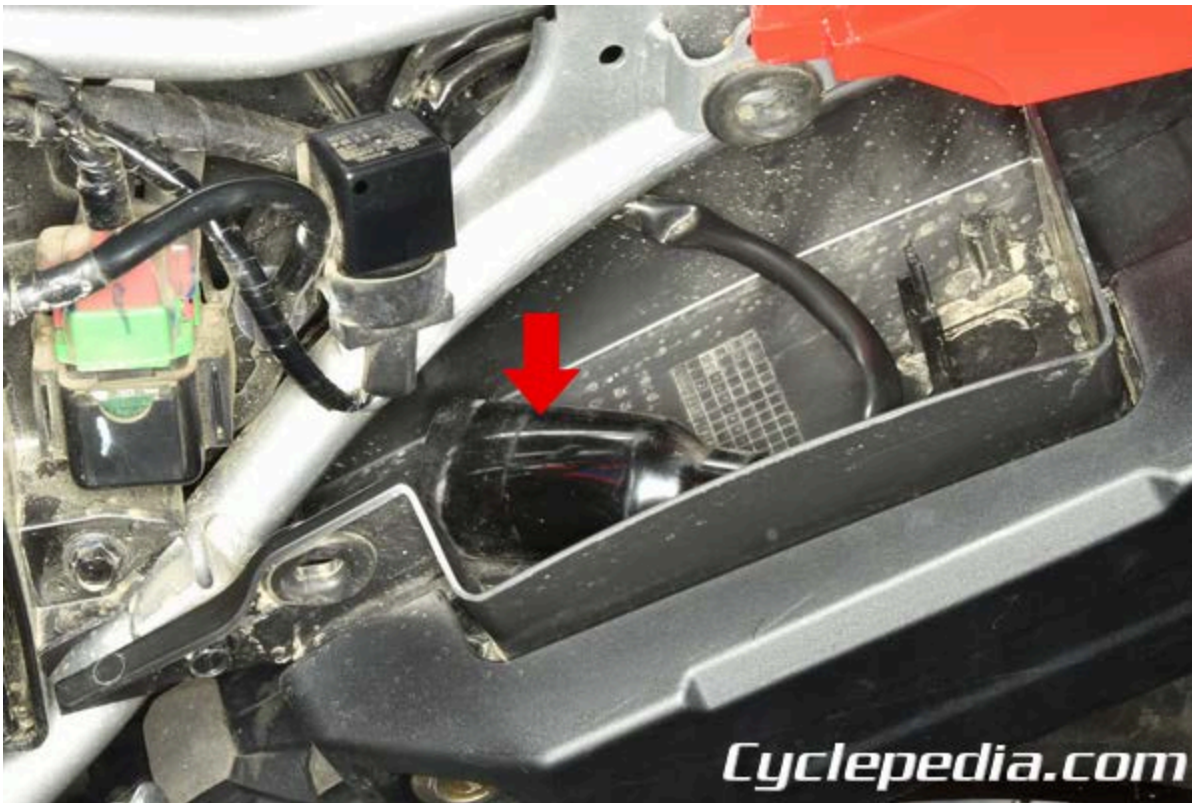
The DTC is indicated in two ways according to the failure status.

In case the ECM detects the problem at present, the MIL will come on.

In case the ECM no longer detects the problem the light will go out but the previous code should be stored in its memory. If it is necessary to retrieve the past problem, readout the stored DTC by following the DTC readout procedure.

### **Reading DTC with the MIL**

Turn the ignition switch to the OFF position.



Access the DLC which is found under a rubber protective boot in the tray on the left rear side of the bike just above the tool box. It is just behind the left side cover which must be removed for access. See the [Bodywork](#) <sup>[2]</sup> topic for more information.



Pull the DLC connector free of the rubber boot.





Remove the dummy connector from the DLC.

Short the Blue/Black and Green wires of the DLC with the special tool.

**Special Tool – SCS Service connector:** 070PZ-ZY30100

Turn the ignition switch ON and the engine stop switch to RUN.

If the ECM has any DTC in its memory, the MIL will start blinking. The MIL blinks indicate the DTC.

See the MIL Blink Pattern earlier in this section for information on reading the MIL blinks, and the [Fuel Injection DTC Tables \(Fault Codes\)](#).<sup>[3]</sup> topic for more information on the DTC.

The MIL has two types of blinks, a long blink and short blink. The long blinking lasts for 1.3 seconds, the short blinking lasts for 0.3 seconds. One long blink is the equivalent of ten short blinks. For example, when two long blinks are followed by three short blinks, the MIL is 23 (two long blinks = 20 blinks, plus three short blinks = 3).

When the ECM stores more than one DTC, the MIL will indicate them by blinking in the order from the lowest number to highest number.

## **Erasing DTC with the SCS Service Connector (Jumper)**

Turn the ignition switch to the OFF position.



Access the DLC and remove the dummy connector as noted earlier.

Short the Blue/Black and Green wires of the DLC with the special tool.

**Special Tool – SCS Service connector:** 070PZ-ZY30100

Turn the ignition switch ON and the engine stop switch to RUN.

Remove the special tool to disconnect the jump.

The MIL will light for approximately 5 seconds. While the MIL lights, short the DLC terminals again with the special tool. The self-diagnostic memory is erased if the MIL goes off and starts blinking.

NOTE:

The DLC must be jumped while the MIL lights. If not, the MIL will not start blinking.

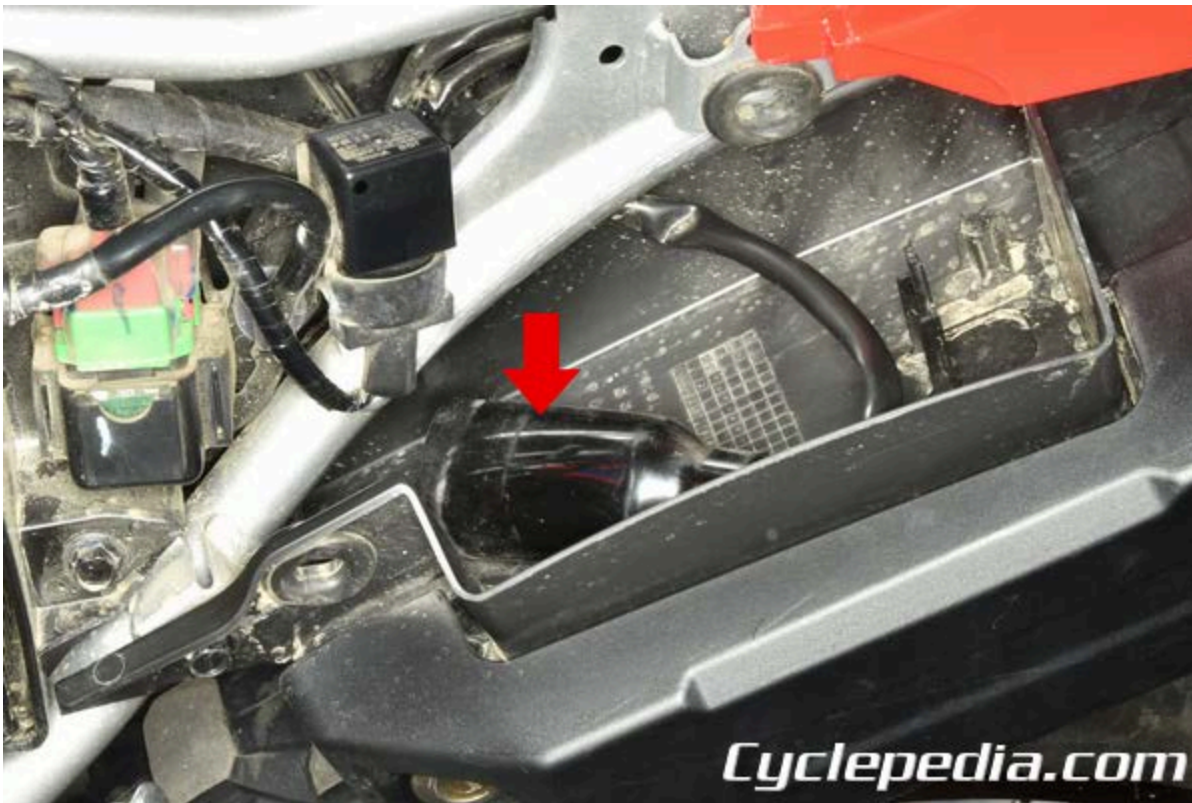
Note that the self-diagnostic memory cannot be erased if the ignition switch is turned OFF before the MIL lights or starts blinking.

## **Honda MCS (Scan Tool) Information**

The Honda MCS can readout the DTC, stored data, current data and other ECM conditions.

Turn the ignition switch to the OFF position.





Access the DLC which is found under a rubber protective boot in the tray on the left rear side of the bike just above the tool box. It is just behind the left side cover which must be removed for access. See the [Bodywork](#) <sup>[2]</sup> topic for more information.



Pull the DLC connector free of the rubber boot.



Remove the dummy connector from the DLC.

Connect the tool to the DLC.

### **Special Tool – Honda MCS**

When the ignition switch is turned ON and set the engine stop switch to RUN use the tool menu to check DTCs and stored (freeze) data.

Note: Freeze data indicates the engine conditions when the first malfunction was detected.

### **DTC Readout with MCS**

Start the engine and check the MIL.

NOTE: When the ignition switch is turned ON and the engine stop switch is set to RUN, the MIL will stay on for a few seconds, then go off.

If the MIL stays on or blinks, connect the MCS to the DLC.

Read the DTC, freeze data and follow the troubleshooting index. See the [Fuel Injection DTC Tables \(Fault Codes\)](#).<sup>[3]</sup> topic for more information.

### **Erasing DTC with MCS**

Connect the Honda MCS to the DLC.

Erase the DTC with the MCS pocket tester while the engine is stopped.

URLs in this post:

[1] Meter: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/multi-function-display/>

[2] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>



[3] Fuel Injection DTC Tables (Fault Codes): <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/fuel-injection-dtc-chart/>

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### Fuel Injection DTC Tables (Fault Codes)

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### Suggested Tools and Supplies

Nitrile Gloves

Safety Glasses

## Diagnostic Trouble Codes Table

See the [DTC Troubleshooting](#) <sup>[1]</sup> and [FI System Self-Diagnostics](#) <sup>[2]</sup> topics for information on testing and troubleshooting reported DTCs.

DTC	Function Failure	Symptom/Fail-safe function
P0107 (1-1)	MAP sensor circuit low voltage MAP sensor or its circuit malfunction MAP sensor circuit high voltage	Engine operates normally
P0108 (1-2)	Loose or poor contact of the sensor unit connector MAP sensor or its circuit malfunction	Engine operates normally
P0117 (7-1)	ECT sensor circuit low voltage ECT sensor or its circuit malfunction ECT sensor circuit high voltage	Hard start at a low temperature
P0118 (7-2)	Loose or poor contact of the ECT sensor connector ECT sensor or its circuit malfunction TP sensor circuit low voltage	Hard start at a low temperature
P0122 (8-1)	Loose or poor contact of the sensor unit connector TP sensor or its circuit malfunction	Poor engine acceleration
P0123 (8-2)	TP sensor circuit high voltage TP sensor or its circuit malfunction	Poor engine acceleration
P0112 (9-1)	IAT sensor circuit low voltage IAT sensor or its circuit malfunction IAT sensor circuit high voltage	Engine operates normally
P0113 (9-2)	Loose or poor contact of the sensor unit connector IAT sensor or its circuit malfunction VS sensor malfunction	Engine operates normally
P0500 (11-1)	Loose or poor contact of the VS sensor connector VS sensor or its circuit malfunction Fuel injector circuit malfunction	Engine operates normally
P0201 (12-1)	Loose or poor contact of the fuel injector connector Fuel injector or its circuit malfunction	Engine does not start Fuel injector, fuel pump and ignition coil shut down



P0131 (21-1)	O2 sensor malfunction low voltage O2 sensor or its circuit malfunction O2 sensor malfunction high voltage	Engine operates normally
P0132 (21-2)	Loose or poor contact of the O2 sensor connector O2 sensor or its circuit malfunction O2 sensor heater malfunction	Engine operates normally
P0135 (23-1)	Loose or poor contact of the O2 sensor connector O2 sensor or its circuit malfunction IACV circuit malfunction	Engine operates normally
P0511 (29-1)	Loose or poor contact of the IACV connector IACV or its circuit malfunction	Engine stalls, hard to start, rough idling
P062F (33-2)	ECM EEPROM malfunction	Engine stalls, hard to start, rough idling Does not hold self-diagnosis data Does not erase the self diagnosis data with SCS connector
P1000 (54-1)	Bank angle sensor circuit low voltage Bank angle sensor or its circuit malfunction Bank angle sensor circuit high voltage	Engine operates normally Engine stop function does not operate when motorcycle tips over
P1001 (54-2)	Loose or poor contact of the bank angle sensor connector Bank angle sensor or its circuit malfunction EVAP purge control solenoid malfunction	Engine operates normally Engine stop function does not operate when motorcycle tips over
P0443 (88-1)	Loose or poor contact of the EVAP purge control solenoid valve connector EVAP purge control solenoid valve or its circuit malfunction PAIR control solenoid malfunction	Engine operates normally
P0412 (89-1)	Loose or poor contact of the PAIR control solenoid connector PAIR control solenoid valve or its circuit malfunction Ignition coil circuit malfunction	Engine operates normally
P0351 (91-1)	Loose or poor contact of the ignition coil connector Ignition coil or its circuit malfunction	Engine does not start Fuel injector and ignition coil shut down

NOTE: If the MCS or GST is not used, perform all of the inspections on the corresponding main code (digits in front of hyphen) of the DTC.

URLs in this post:

[1] DTC Troubleshooting: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/dtc-troubleshooting/>

[2] FI System Self-Diagnostics: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/self-diagnostics/>

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## - Honda CRF300L Service Manual

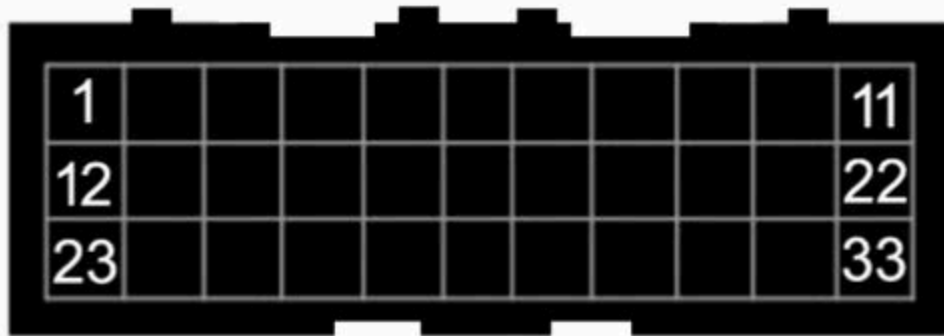
### DTC Troubleshooting

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

### Suggested Tools and Supplies

Meter  
Nitrile Gloves  
Safety Glasses

## ECM Pinout



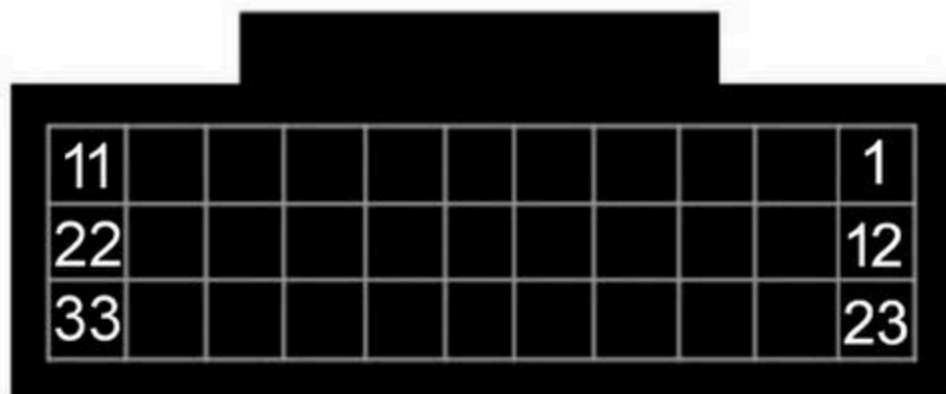
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Use the following terminal identifications when testing ECM circuits. Diagram shows ECM side of the male terminals.

IGP (ignition power) – Bl/Bu  
LG (ground) – G  
O2 sensor – Bl/W (becomes Bl later in harness)  
SG (grounds for sensor unit, ECT, and O2 sensor) – G/W  
THL (sensor unit/TP sensor) – Y  
VCC (sensor unit/TP and MAP sensors) – Y/R  
–  
FFP (fuel pump unit 2017+) – Br  
PG1 (ground) – G  
PG2 (ground) – G  
IGPLS (ignition pulse) – G/R  
PCP (crankshaft position sensor) – Bu/Y  
IMOV (ign switch) – P  
TA (sensor unit/IAT sensor) – Gr/Bu  
SCS (DLC connector) – Bu/Bl  
INJ (fuel injector) – P/W  
VSP (meter and vehicle speed sensor) – Bl  
FI-IND (meter/MIL) – W/Bu



FANC (fan control relay) – Bl/G  
 IACV2A (idle air control valve) – Br/W  
 IACV1A (idle air control valve) – Bu/W  
 O2HT (O2 sensor heater) – W/Bl (becomes W in harness)  
 TACHO (meter/tachometer) – Bl/Y  
 TW (ECT) – Y/Bu  
 SSTDAND (side stand switch) – G/O  
 BA (bank angle sensor) – R/Bu  
 PB (sensor unit/MAP sensor) – Lg/Bl  
 EX-AI (PAIR control solenoid valve) – O/G  
 NLSW (clutch switch, and diode-to-gear position switch) – G/R (becomes Lg/R in harness to position switch after diode)  
 K-LINE (DLC connector) – Y  
 IACV2B (idle air control valve) – Br/Bl  
 IACV1B (idle air control valve) – Bu/Bl  
 PCS (EVAP Purge control solenoid valve) – Y/Bl



HARNESS SIDE

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Remember when testing the ECM wiring harness that the terminal numbers are reversed.

## Inspection

The first step in troubleshooting an ECM controlled circuit is to inspect the connections at both ends (the ECM and the effected component) and as much of the harness as possible for obvious signs of damage or trouble. Make sure the connections are clean and tight.



Access the ECM on the left side of the chassis. See the [ECM](#) <sup>[1]</sup> topic for more information.



Remove the ECM and holder from the mount.

**Caution: Do not unplug or plug in the ECM while the ignition switch is in the ON position.**





Release the retaining tab and pull the ECM off the 33P (Black) harness connector.



Inspect the connector and make sure the it is in good condition and the terminals are making good contact.



Inspect the ECM terminals as well for signs of damage or corrosion.

When performing tests on the circuit it is a good idea to leave the ECM out of the harness to prevent the possibility of damage, and many of the circuit tests can be made from this connector so the entire circuit can be checked.

Notes:

Always clean around and keep any foreign material away from the ECM 33-pin connector before disconnecting it.

Do not unplug or plug in the ECM connector while the ignition switch is in the ON position.

A faulty PGM-FI system is often related to poorly connected or corroded terminals. Check all related connections before proceeding.

In testing at ECM 33-pin connector (wire harness side) terminal, always use the test probe. Insert the test probe into the connector terminal, then attach the digital multimeter probe to the test probe.

**Special Tool – Test probe:** 07ZAJ-RDJA110

## **DTC 1 (MAP SENSOR)**

Note: Before starting the inspection, check for loose or poor contact on the sensor unit 5P connector and ECM 33P (Black) connector.

Probable causes:

Open circuit in Yellow/red wire between the sensor unit and ECM

Open or short in Light green/black wire between the sensor unit and ECM

Open circuit in Green/white wire between the sensor unit and ECM

Faulty sensor unit

Faulty ECM

### **DTC 1-1 (P0107 MAP Sensor Low Voltage)**

#### **Step 1: MAP Sensor System Inspection**

Turn the ignition switch ON and the engine stop switch to RUN.

Check the MAP sensor voltage with the Honda MCS.



Is about 0 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure, check for loose poor contact at the harness connectors.

### **Step 2: Sensor Unit Power Input Voltage Inspection**

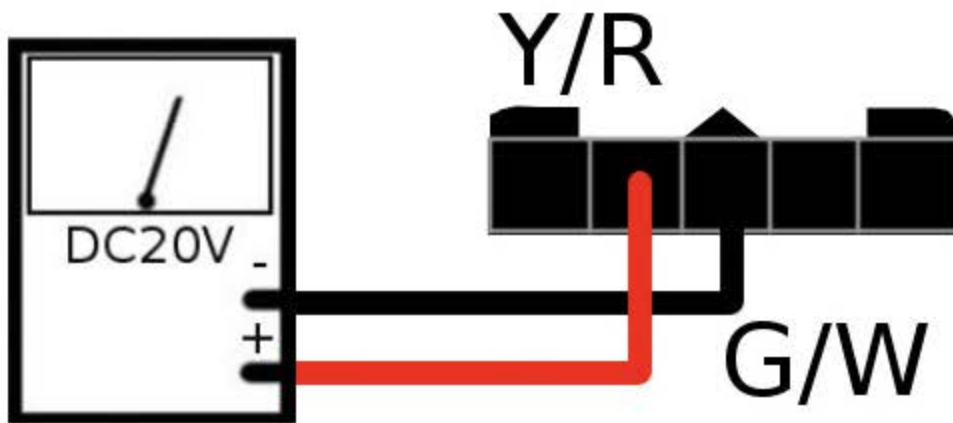
Set the multimeter to read DC voltage.

Turn the ignition switch to the OFF position.



Unplug the sensor unit connector.

Turn the ignition switch ON and the engine stop switch to RUN.



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Measure the voltage at the wire harness side.

Connection: Yellow/red (+) to Green/white (-)

Standard: 4.75 – 5.25 V

Is the voltage within 4.75 – 5.25 V?

YES – GO TO STEP 3

NO – Open or short circuit in the Y/R wire. If there is no open or short circuit, replace the ECM with a known good one and recheck

### **Step 3: MAP Sensor Output Voltage Inspection**

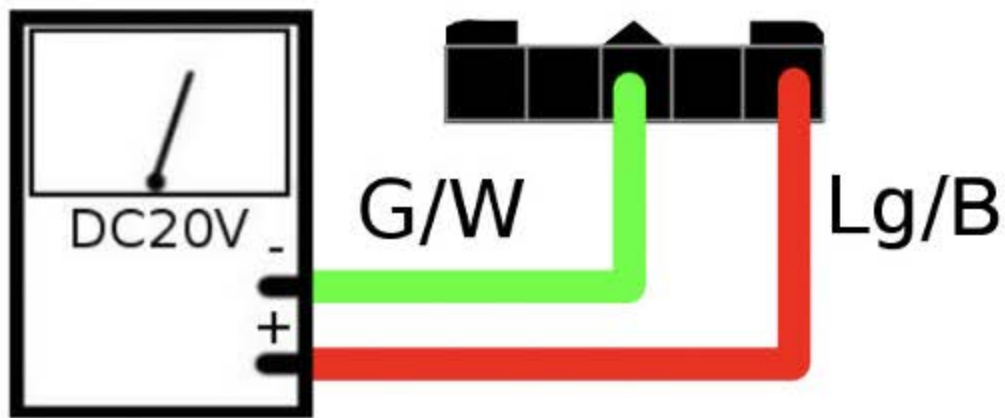
Turn the ignition switch OFF.

With the sensor unit 5P connector still unplugged from the previous step.

Note: The ECM 33P connector must be plugged in for this test.

Turn the ignition switch ON and the engine stop switch to RUN.





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Measure the voltage at the sensor unit 5P connector of the wire side.

Connection: Light green/black (+) to Green/white (-)

Standard: 3.80 – 5.25 V

Is the voltage within 3.80 – 5.25 V?

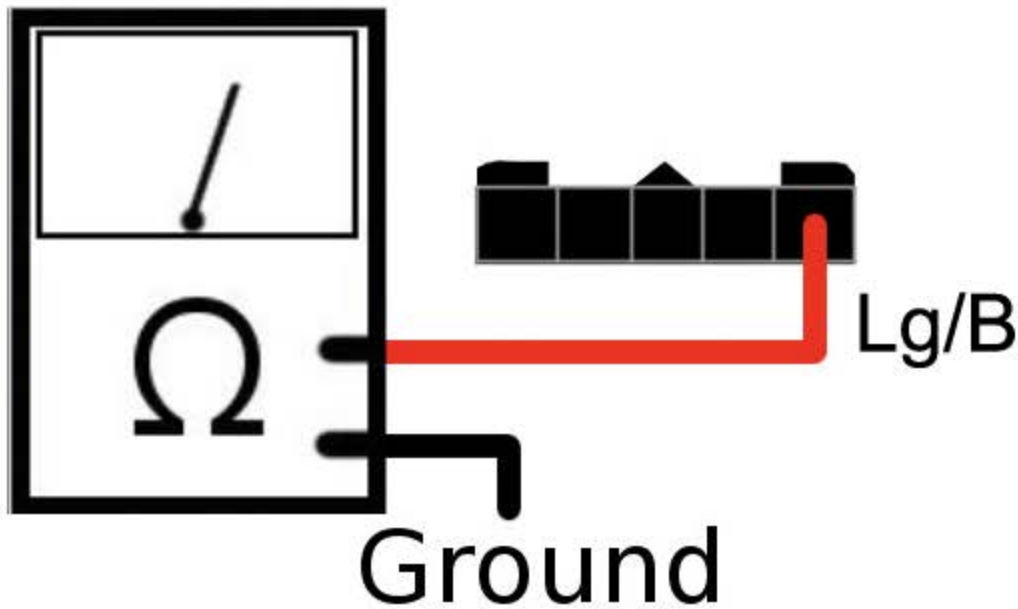
YES – Replace the sensor unit (MAP sensor) with a new one and recheck

NO – GO TO STEP 4

#### **Step 4: MAP Sensor Output Line Short Circuit Inspection**

Turn the ignition switch OFF.

Make sure the ECM 33P connector is unplugged for safety.



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Check for continuity between the sensor unit 5P connector of the wire side and ground.

Connection: Light green/black – Ground

Is there continuity?

YES – Short circuit in Light green/black wire (repair/replace harness)

NO – Replace the ECM with a known good one and recheck

### **DTC 1-2 (P0107 MAP Sensor High Voltage)**

#### **Step 1: MAP Sensor System Inspection**

Turn the ignition switch ON and the engine stop switch to RUN.

Check the MAP sensor voltage with the Honda MCS.

Is about 5 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure or loose/poor contact on the sensor unit 5P connector

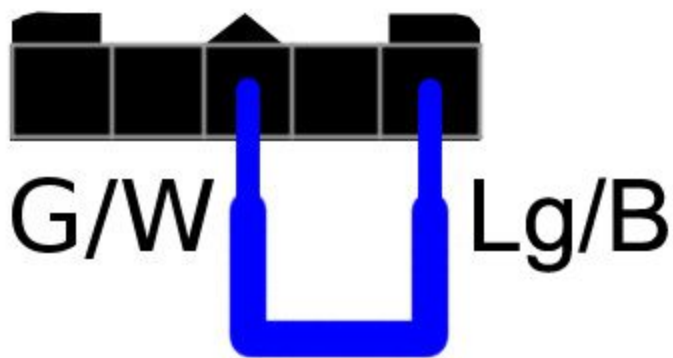
#### **Step 2: MAP Sensor Inspection**

Turn the ignition switch OFF.





Unplug the sensor unit 5P connector.



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Connect the sensor unit 5P connector terminals at the wire side with a jumper wire.

Connection: Light green/black to Green/white

Turn the ignition switch ON and the engine stop switch to RUN.

Check the MAP sensor with the Honda MCS.

Is about 0 V indicated?

YES – Faulty sensor unit (MAP sensor). Replace the MAP sensor with a new one and recheck. See the [Throttle Body](#) <sup>[2]</sup> topic for more information.

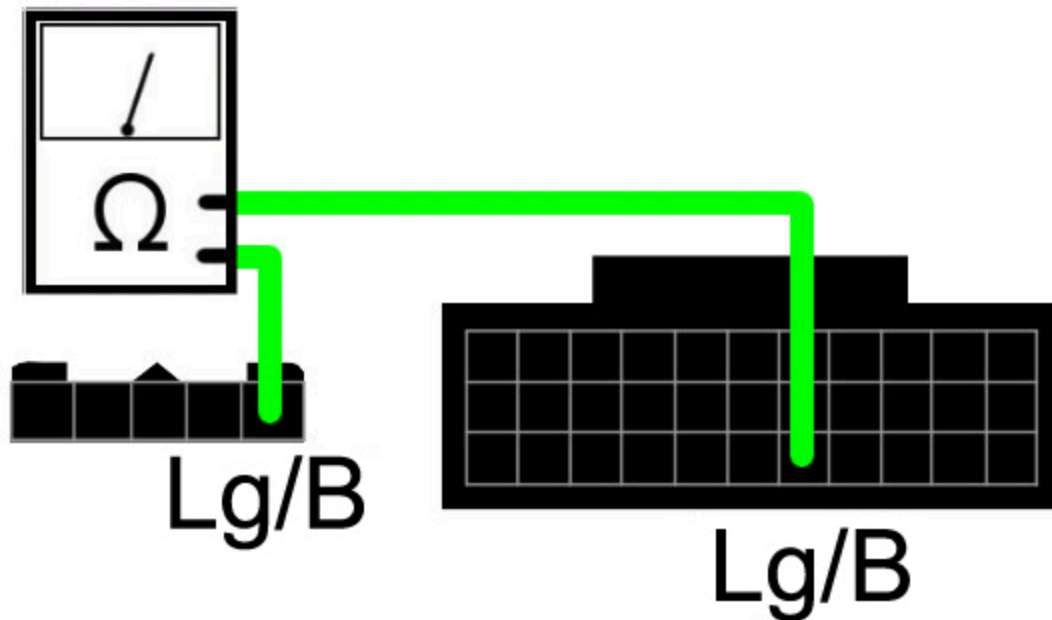
NO – GO TO STEP 3.

### Step 3: MAP Sensor Output Line Open Circuit Inspection

Turn the ignition switch OFF.

Remove the jumper wire from the previous step.

Unplug the ECM 33P (Black) connector.



Check the continuity between the ECM 33P (Black) connector and sensor unit 5P connector of the wire side.

Connection one (shown): Light green/black to Light green/black

Connection two: Green/white (center pin of sensor unit connector) to Green/white (pin 4 of the ECM harness, top row fourth from right)

**Special Tool – Test probe:** 07ZAJ-RDJA110

Is there continuity?

YES – Replace the ECM with a known good one, and recheck

NO – Open circuit in Light green/black wire or Green/white wire – repair or replace harness

## DTC 7 (ECT SENSOR)





Before testing check for a loose or poor connection at the ECT sensor 3P connector and the ECM 33P (Black) connector, then recheck for a DTC.

Probable causes:

Open or short circuit in Yellow/blue wire between the ECT sensor and ECM.

Open circuit in Green/white wire between the ECT sensor and ECM.

Faulty ECT sensor

Faulty ECM

### **DTC 7-1 (P0117 ECT Sensor Low Voltage)**

#### **Step 1: ECT Sensor System Inspection**

Turn the ignition switch ON and the engine stop switch to RUN.

Check the ECT sensor voltage with the Honda MCS.

Is about 0 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure, check for loose or poor contact on the harness connectors

#### **Step 2: ECT Sensor Inspection**

Turn the ignition switch OFF.

Locate the ECT sensor connector on the back side of the cylinder head.



Unplug the ECT connector.

Turn the ignition switch ON and the engine stop switch to RUN.

Check the ECT sensor voltage with the Honda MCS.

Is about 0 V indicated?

YES – GO TO STEP 3.

NO – Replace the ECT sensor with a known good one and recheck.

### **3. ECT Sensor Output Line Short Circuit Inspection**

Turn the ignition switch OFF.

Check for continuity between the ECT sensor 3P connector of the wire side and ground.

Connection: Yellow/blue wire to Ground

Is there continuity?

YES – Short circuit in Yellow/blue wire, repair or replace harness

NO – Replace the ECM with a known good one, and recheck.

### **DTC 7-2 (P0118 ECT Sensor High Voltage)**

#### **Step 1: ECT Sensor System Inspection**

Turn the ignition switch ON and the engine stop switch to RUN.

Check the ECT sensor voltage with the Honda MCS.

Is about 5 V indicated?

YES – GO TO STEP 2



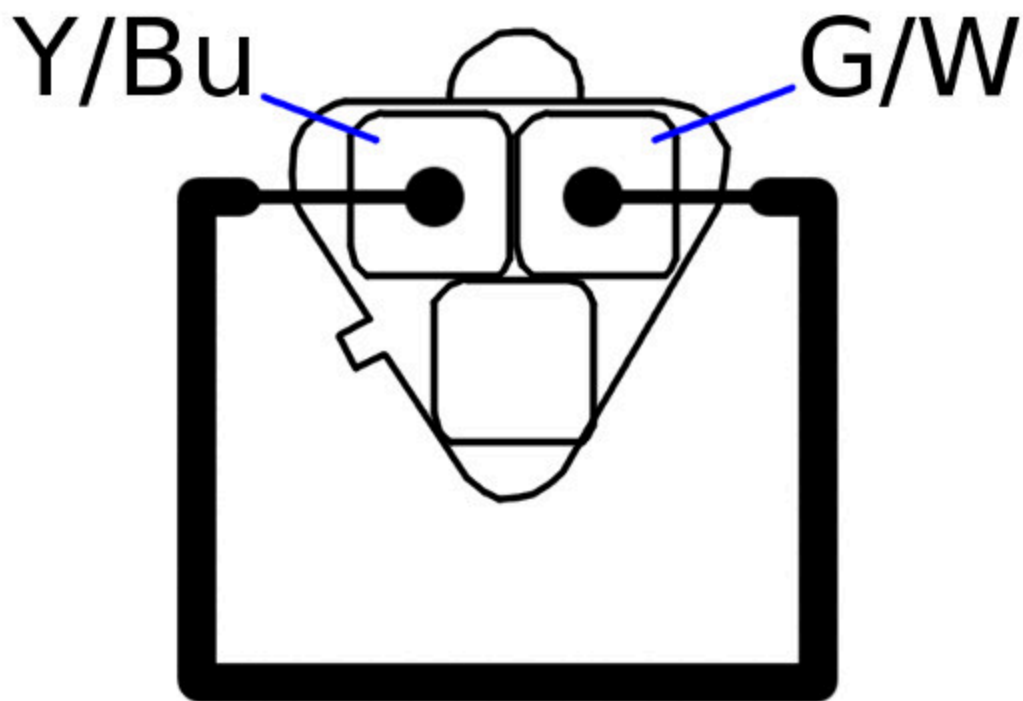
NO – Intermittent failure, or loose/poor contact on the harness

## Step 2: ECT Sensor Inspection

Turn the ignition switch OFF.



Disconnect the ECT sensor 3P connector.



Connect the ECT sensor 3P connector terminals at the wire side with a jumper wire.

Connection: Yellow/blue wire to Green/white

Turn the ignition switch ON and the engine stop switch to RUN.

Check the ECT sensor voltage with the Honda MCS.

Is about 0 V indicated?

YES – Replace the ECT sensor with a known good one and recheck

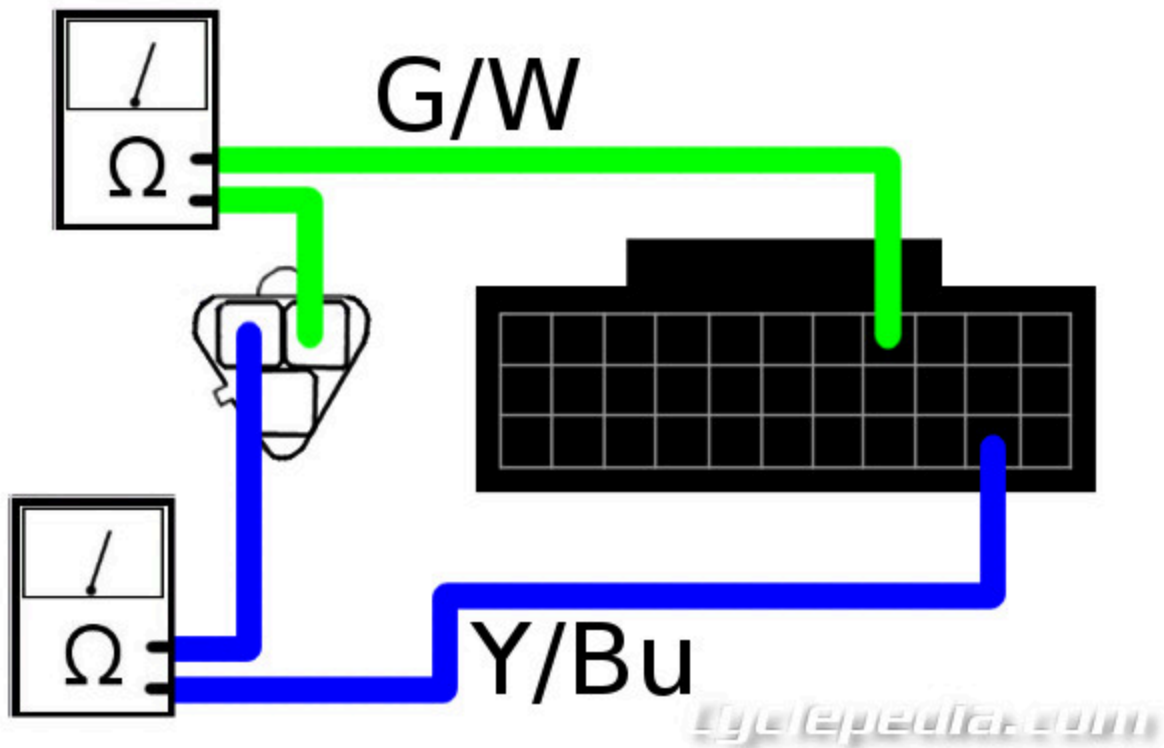
NO – GO TO STEP 3

### **Step 3: ECT Sensor Output Line Open Circuit Inspection**

Turn the ignition switch OFF.

Remove the jumper wire.

Unplug the ECM 33P (Black) connector.



Check the continuities between the ECM 33P connector and ECT sensor 3P connector of the wire side.

**Connection:** Yellow/blue to Yellow/blue and Green/white to Green/white

**Special Tool – Test probe:** 07ZAJ-RDJA110

Is there continuity?

YES – Replace the ECM with a known good one, and recheck

NO – Open circuit in Yellow/blue or Green/white wire

## **DTC 8 (TP SENSOR)**





Note: Before starting the inspection, check for loose or poor contact on the sensor unit 5P connector and ECM 33P (Black) connector.

Probable causes:

- Open circuit in Yellow/red wire between the sensor and ECM
- Open or short circuit in Yellow wire between the sensor and ECM
- Open circuit in Green/white wire between the sensor and ECM
- Faulty sensor unit
- Faulty ECM

**DTC 8-1 (P0122 TP Sensor Low Voltage)**



Note: Before starting the inspection, check for loose or poor contact on the sensor unit 5P connector and ECM 33P (Black) connector, then recheck the DTC.

### **Step 1: TP Sensor System Inspection**

Turn the ignition switch ON and the engine stop switch to RUN.

Check the TP sensor voltage with the Honda MCS when the throttle fully closed.

Is about 0 V indicated?

YES – Intermittent failure or Loose or poor contact on the harness

NO – GO TO STEP 2.

### **Step 2: Sensor Unit Power Input Voltage Inspection**

Set the multimeter to read DC voltage.

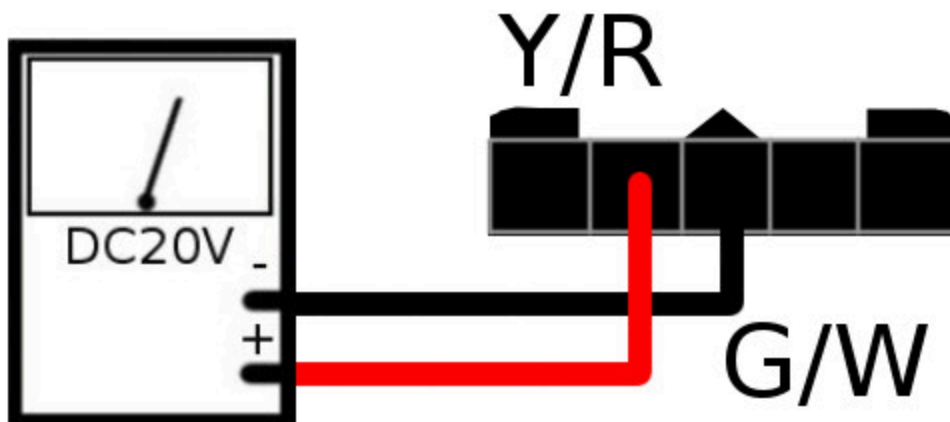
Turn the ignition switch to the OFF position.





Unplug the sensor unit connector.

Turn the ignition switch ON and the engine stop switch to RUN.



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Measure the voltage at the wire harness side.

Connection: Yellow/red (+) to Green/white (-)

Standard: 4.75 – 5.25 V

Is the voltage within 4.75 – 5.25 V?

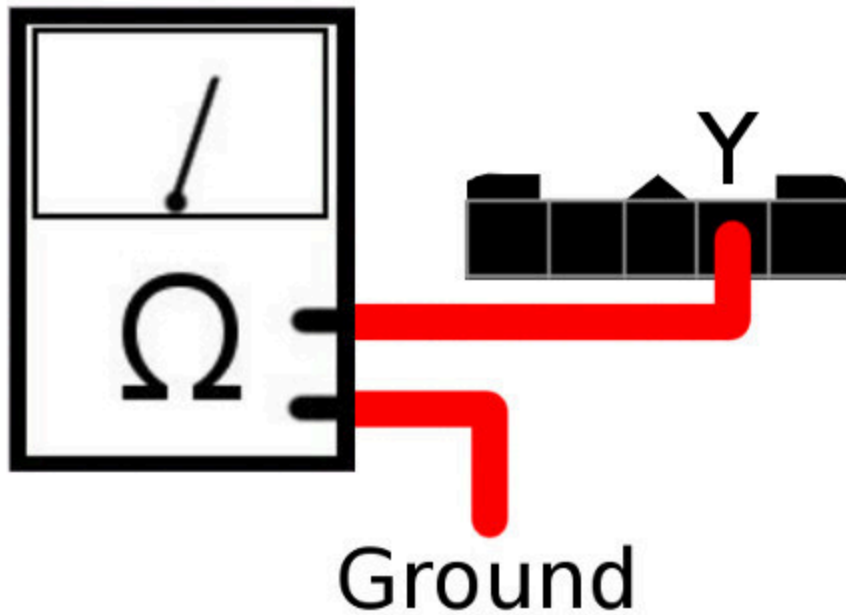
YES – GO TO STEP 3

NO – Open or short circuit in the Y/R wire. If there is no open or short circuit, replace the ECM with a known good one and recheck

### **Step 3: TP Sensor Output Line Short Circuit Inspection**

Turn the ignition switch OFF.

Start with the sensor unit 5P connector still unplugged from the last step.



Check for continuity between the sensor unit 5P connector of the wire side and ground.

Connection: Yellow to Ground

Is there continuity?

YES – Short circuit in Yellow wire, repair or replace harness

NO – GO TO STEP 4

### **Step 4: TP Sensor Output Line Open Circuit Inspection**

Disconnect the ECM 33P (Black) connector.

Check for continuity between the ECM 33P (Black) connector and sensor unit 5P connector of the wire side.

Connection: Yellow to Yellow

**Special Tool – Test probe:** 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 5.



NO – Open circuit in Yellow wire, repair or replace harness

### **Step 5: TP Sensor Inspection**

Replace the sensor unit with a known good one. See the [Throttle Body](#) <sup>[2]</sup> topic for more information.

Connect the sensor unit 5P and ECM 33P (Black) connectors.

Erase the DTC's. See the [FI System Self-Diagnostics](#) <sup>[3]</sup> topic for more information.

Turn the ignition switch ON and the engine stop switch to RUN.

Check the TP sensor with the Honda MCS.

Is DTC 8-1 indicated?

YES – Replace the ECM with a known good one, and recheck.

NO – Faulty original sensor unit (TP sensor)

## **DTC 8-2 (P0123 TP Sensor High Voltage)**

### **Step 1: TP Sensor System Inspection**

Turn the ignition switch ON and the engine stop switch to RUN.

Check the TP sensor voltage with the throttle fully closed using the Honda MCS.

Is about 5 V indicated?

YES – GO TO STEP 3

NO – GO TO STEP 2

### **Step 2: TP Sensor Inspection**

Check that the TP sensor voltage increases continuously when moving the throttle from fully closed to fully opened using the data list menu of the Honda MCS.

Is the voltage increasing continuously?

YES – Intermittent failure

NO – Replace the TP sensor (sensor unit) with a known good one, and recheck. See the [Throttle Body](#) <sup>[2]</sup> topic for more information.

### **Step 3: TP Sensor Ground Line Inspection**

Turn the ignition switch OFF.

Disconnect the ECM 33P (Black) connector.

Check for continuity between the sensor unit and ECM harness connectors on the Green/white wire.

Connection two: Green/white (center pin of sensor unit connector) to Green/white (pin 4 of the ECM harness, top row fourth from right)

**Special Tool – Test probe:** 07ZAJ-RDJA110

Is there continuity?

YES – Faulty G/W wire, repair or replace harness

NO – GO TO STEP 4

#### Step 4: TP Sensor Inspection

Replace the sensor unit with a known good one. See the [Throttle Body](#) <sup>[2]</sup> topic for more information.

Connect the sensor unit 5P and ECM 33P (Black) connectors.

Erase the DTC's. See the [FI System Self-Diagnostics](#) <sup>[3]</sup> topic for more information.

Turn the ignition switch ON and the engine stop switch to RUN.

Check the TP sensor with the Honda MCS.

Is DTC 8-2 indicated?

YES – Replace the ECM with a known good one, and recheck.

NO – Faulty original sensor unit (TP sensor)

### DTC 9 (IAT SENSOR)



Note: Before starting the inspection, check for loose or poor contact on the sensor unit 5P connector and ECM 33P (Black) connector.

Probable causes:

Open or short circuit in Gray/blue wire between the sensor unit and ECM

Open circuit in Green/white wire between the sensor unit and ECM

Faulty sensor

Faulty ECM

#### DTC 9-1 (P0112 IAT Sensor Low Voltage)

##### Step 1: IAT Sensor System Inspection

Turn the ignition switch ON and the engine stop switch to RUN.

Check the IAT sensor voltage with the Honda MCS.



Is about 0 V indicated?

YES – GO TO STEP 2.

NO – Intermittent failure or loose/poor contact in the harness connectors

### **Step 2: IAT Sensor Inspection**

Turn the ignition switch OFF.



Unplug the sensor unit 5P connector.

Turn the ignition switch ON and the engine stop switch to RUN.

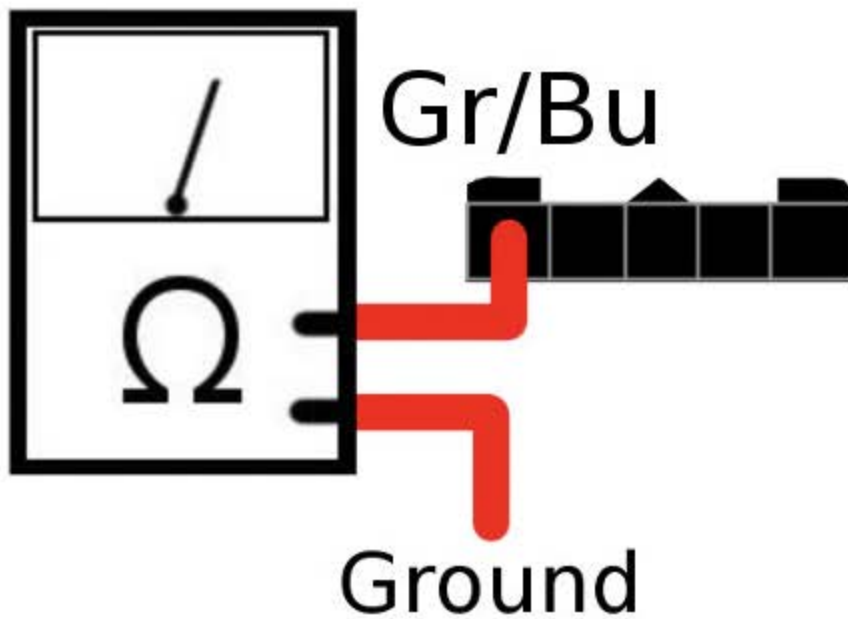
Check the IAT sensor voltage with the Honda MCS.

Is about 0 V indicated?

YES – GO TO STEP 3.

NO – Faulty sensor unit (IAT sensor), replace the sensor unit and recheck

### **Step 3: IAT Sensor Voltage Input Line Short Circuit Inspection**



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Check for continuity between the sensor unit 5P connector of the wire side and ground.

Connection: Gray/blue to Ground

Is there continuity?

YES – Short circuit in Gray/blue wire

NO – Replace the ECM with a known good one, and recheck.

### **DTC 9-2 (P0113 IAT Sensor High Voltage)**

#### **Step 1: IAT Sensor System Inspection**

Turn the ignition switch ON and the engine stop switch to RUN.

Check the IAT sensor voltage with the Honda MCS.

Is about 5 V indicated?

YES – GO TO STEP 2.

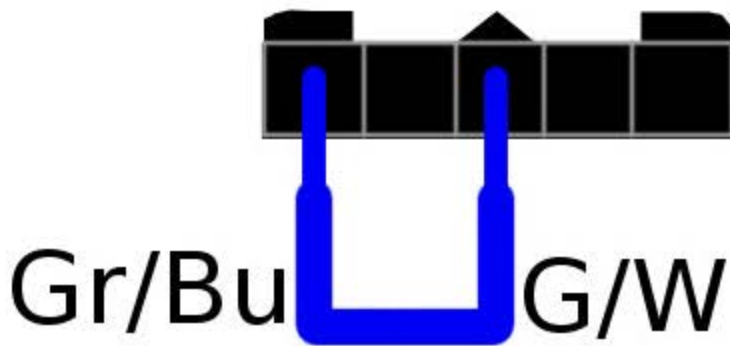
NO – Intermittent failure or loose/poor contact on the harness connectors

#### **Step 2: IAT Sensor Inspection**

Turn the ignition switch OFF.

Disconnect the sensor unit 5P connector.





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Connect the IAT sensor terminals at the wire side with a jumper wire.

Connection: Gray/blue to Green/white

Turn the ignition switch ON and the engine stop switch to RUN.

Check the IAT sensor voltage with the Honda MCS.

Is about 0 V indicated?

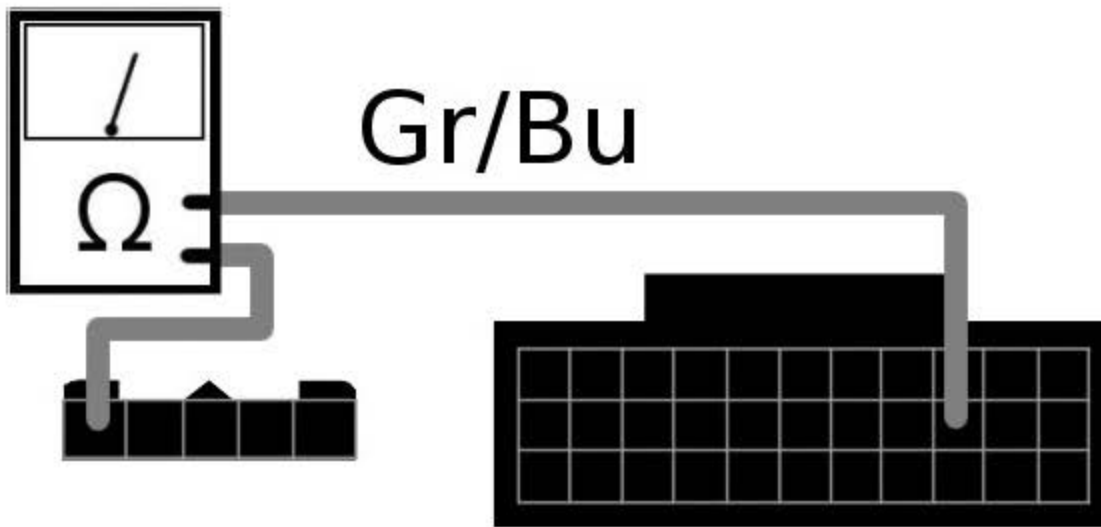
YES – Faulty sensor unit (IAT sensor), replace the sensor unit and recheck

NO – GO TO STEP 3

#### **Step 4: IAT Sensor Voltage Input Line Open Circuit Inspection**

Turn the ignition switch OFF.

Disconnect the ECM 33P (Black) connector.



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Check for continuity between the ECM 33P (Black) connector and sensor unit 5P connector of the wire side.

Connection: Gray/blue to Gray/blue

**Special Tool – Test probe:** 07ZAJ-RDJA110

Is there continuity?

YES – Replace the ECM with a known good one, and recheck.

NO – Open circuit in Gray/blue wire

**DTC 11 (VS SENSOR)**





Note: Before testing, check for a loose or poor contact on the VS sensor 3P (blue) connector and ECM 33P (Black) connector, then recheck for DTCs. The connector is found on the frame crossmember just behind the cylinder head and throttle body (under the air box connector tube).

Probable causes:

Open or short circuit in Black wire between the VS sensor and ECM.

Faulty VS sensor

Faulty ECM

### **DTC 11-1 (P0500 VS Sensor)**

#### **Step 1: VS Sensor System Inspection**

Turn the ignition switch ON and the engine stop switch to RUN.

Check the VS sensor with the MCS.

Is DTC 11-1 indicated?

YES – GO TO STEP 2.

NO – Intermittent failure, or loose/poor contact on the harness connector.

#### **Step 2: VS Sensor Input Voltage Inspection**

Turn the ignition switch OFF.



Unplug the VS sensor 3P (Blue) connector.

Turn the ignition switch ON and the engine stop switch to RUN.

Measure the voltage at the VS sensor 3P (blue) connector on the wire side of the harness.

Connection: Blue/red (+) – Green/black (-)

Standard: Battery voltage

Is there battery voltage present?

YES – GO TO STEP 3.

NO – Open circuit in Black/red or Green/black wire in the harness to the meter.

### **Step 3: VS Sensor Signal Line Inspection**

Turn the ignition switch OFF.

Disconnect the ECM 33P (Black) connector.

Check for continuity between the VS sensor 3P (Blue) connector on the wire side of the harness and a good ground.

Connection: Black – Ground

Standard: No continuity

Is there continuity?

YES – Short circuit in Black wire.

NO – GO TO STEP 4.

### **Step 4: VS Sensor Signal Line Open Circuit Inspection**



Check for continuity between the VS sensor 3P (Blue) connector on the wire side of the harness and the ECM 33P (Black) connector.

Connection: Black (right most pin in the 3P connector) – Black (Pin 17 of the ECM harness, 6th from the right in the middle row).

Standard: Continuity

Is there continuity?

YES – GO TO STEP 5.

NO – Open circuit in Black wire.

### **Step 5: VS Sensor Inspection**

Replace the VS Sensor with a known good one. See the [Sensors](#) <sup>[4]</sup> topic for more information.

Reconnect the ECM 33P (Black) connector.

Erase the DTC's. See the [FI System Self-Diagnostics](#) <sup>[3]</sup> topic for more information.

Test ride the motorcycle above 2,000 rpm, then stop the engine.

Turn the ignition switch ON and the engine stop switch to RUN.

Check the DTCs with the Honda MCS.

Is DTC 11-1 indicated?

YES – Replace the ECM with a known good one, and recheck.

NO – Faulty original VS sensor.

## **DTC 12 (FUEL INJECTOR)**



NOTE: Before starting the inspection, check for loose or poor contact on the fuel injector connector and ECM 33P (Black) connector, then recheck the DTC.

Probable causes:

Open circuit in Black/blue wire between the battery and fuel injector  
Open or short circuit in Pink/white wire between the fuel injector and ECM  
Faulty fuel injector  
Faulty ECM

### **DTC 12-1 (P0201 FUEL INJECTOR)**

#### **Step 1: Fuel injector System Inspection**

Turn the ignition switch ON and the engine stop switch to RUN.

Check the fuel injector with the Honda MCS.

Is the DTC 12-1 indicated?

YES – GO TO STEP 2

NO – Intermittent failure or loose/poor contact on the fuel injector 2P (Gray) connector

#### **Step 2: Fuel injector Input Voltage Inspection**

Turn the ignition switch OFF.



Disconnect the fuel injector 2P (Gray) connector.

Turn the ignition switch ON and the engine stop switch to RUN.

Measure the voltage between the fuel injector 2P (Gray) connector of the wire side and ground.

Connection: Black/blue (+) to Ground (-)

Standard: Battery voltage



Does the standard voltage exist?

YES – GO TO STEP 3.

NO – Open in Black/blue wire

### **Step 3: Fuel injector Signal Line Inspection**

Turn the ignition switch OFF and unplug the ECM 33P (Black) connector.

Check for continuity between the fuel injector 2P (Gray) connector of wire side and the ECM 33p (Black) connector and a good ground.

Connection: Pink/white (left terminal) in the injector connector to Pink/white (pin 16, fifth from the right in the middle) of the ECM harness. Check also between the Pink/white wire of the injector connector and a good ground.

Is there continuity to the ECM connector, and no continuity to ground?

YES – GO TO STEP 4

NO – open (no continuity) or short (continuity to ground) circuit in Pink/white wire

### **Step 4: Fuel injector Resistance Inspection**



Measure the resistance between the fuel injector 2P connector terminals.

Standard: 11 – 13 ohms (20°C/68°F)

Is the resistance within 11 – 13 ohms (20°C/68°F)?

YES – Replace the ECM with a known good one and recheck for code

NO – Faulty fuel injector

## **DTC 21 (O2 SENSOR)**



NOTE: Before starting the inspection, check for loose or poor contact on the O2 sensor 4P (Black) connector and ECM 33P (Black) connector, then recheck the DTC.

### **DTC 21-1 (P0131 O2 Sensor Low Voltage)**

#### **Step 1: Recheck the DTC**

Erase the DTC's. See the [FI System Self-Diagnostics](#) <sup>[3]</sup> topic for more information.

Start the engine and test ride the bike to warm up the engine up to coolant temperature is 80°C (176°F).

Stop the engine and recheck the O2 sensor with the Honda MCS.

Is the DTC 21-1 indicated?

YES – GO TO STEP 2

NO – Intermittent failure or loose/poor contact in the harness connectors

#### **Step 2: O2 Sensor Output Line Short Circuit Inspection**

Turn the ignition switch OFF.

Disconnect the ECM 33P (Black) connector.





Disconnect the O2 sensor 4P (Black) connector from the harness.

Check for continuity between the O2 sensor connector on of the wire harness side and ground.

Connection: Black/white to Ground

Is there continuity?

YES – Short circuit in Black/white wire

NO – GO TO STEP 3

### **Step 3: Fuel Pressure Test**

If the fuel pressure is out of specification too much or too little fuel may be delivered by injector pulse width and the resulting over or under fueling can make the O2 sensor appear like it is out of range. Confirm condition of the fuel system before condemning the sensor.

Reconnect the O2 sensor 4p (black) and ECM 33P (Black) connectors.

Perform the fuel pressure test as detailed in the [Fuel Pump](#) <sup>[5]</sup> topic.

**Standard (fuel pressure at idle):** 288 – 300 kPa (2.9 – 3.1 kgf/cm<sup>2</sup>, 42 – 44 psi)

Is the fuel pressure within specification?

YES – GO TO STEP 4

NO – Check if there is any erratic swing or vibration with the gauge needle. If there is, replace the fuel filter on the pump and recheck. If the needle is stable, replace the fuel pump unit and recheck. See the [Fuel Pump](#) <sup>[5]</sup> topic for more information either way

### **Step 4: Fuel Flow Test**



Adjust the fuel in the tank until only the lowest segment (arrow) in the gauge is illuminated, but not blinking.

Perform the fuel flow inspection as detailed in the [Fuel Pump](#) <sup>[5]</sup> topic.

**Standard (Fuel pump flow at 12 V):** 55.6 cm<sup>3</sup> (1.88 US oz, 1.96 Imp oz) minimum/10 seconds

Is the fuel flow at a above minimum specification?

YES – GO TO STEP 5.

NO – Replace the fuel filter (See the [Fuel Pump](#) <sup>[5]</sup> topic for more information).

### Step 5: O2 Sensor Inspection

Replace the O2 sensor with a known good one. See the [Sensors](#) <sup>[4]</sup> topic for more information.

Connect the ECM 33P connector.

Erase the DTC's. See the [FI System Self-Diagnostics](#) <sup>[3]</sup> topic for more information.

Turn the ignition switch ON and the engine stop switch to RUN.

Start the engine and warm up the engine up to coolant temperature is 80°C (176°F).

Test-ride the motorcycle, then stop the engine and recheck the O2 sensor with the Honda MCS.

Is the DTC 21-1 indicated?

YES – Replace the ECM with a known good one, and recheck.

NO – Faulty original O2 sensor.

### DTC 21-2 (P0132 O2 Sensor High Voltage)



### **Step 1: Recheck the DTC**

Erase the DTC's. See the [FI System Self-Diagnostics](#) <sup>[3]</sup> topic for more information.

Start the engine and test ride the bike to warm up the engine up to coolant temperature is 80°C (176°F).

Stop the engine and recheck the O2 sensor with the Honda MCS.

Is the DTC 21-2 indicated?

YES – GO TO STEP 2

NO – Intermittent failure or loose/poor contact in the harness connectors

### **Step 2: O2 Sensor Output Line Open Circuit Inspection**

Turn the ignition switch OFF.

Disconnect the ECM 33P (Black) connector.



Unplug the O2 sensor 4P (Black) connector from the harness.

Check for continuity between the O2 sensor connector and ECM connector on of the wire harness sides using a test probe on the ECM harness.

**Special Tool – Test probe:** 07ZAJ-RDJA110

Connection: Black/white to Black/white and Green/white to Green/white

Is there continuity?

YES – GO TO STEP 3

NO – Open circuit in Black/white and/or Green/white wire

### Step 3: O2 Sensor Inspection

Replace the O2 sensor with a known good one. See the [Sensors](#) <sup>[4]</sup> topic for more information.

Connect the ECM 33P connector.

Erase the DTC's. See the [FI System Self-Diagnostics](#) <sup>[3]</sup> topic for more information.

Turn the ignition switch ON and the engine stop switch to RUN.

Start the engine and warm up the engine up to coolant temperature is 80°C (176°F).

Test-ride the motorcycle, then stop the engine and recheck the O2 sensor with the HDS pocket tester/Honda MCS.

Is the DTC 21-2 indicated?

YES – Replace the ECM with a known good one, and recheck.

NO – Faulty original O2 sensor.

## DTC 23 (O2 SENSOR HEATER)



NOTE: Before starting the inspection, check for loose or poor contact on the O2 sensor 4P (Black) connector and ECM 33P (Black) connector, then recheck the DTC.

### DTC 23-1 (P0135 O2 Sensor Heater Malfunction)

#### Step 1: Recheck the DTC

Erase the DTC's. See the [FI System Self-Diagnostics](#) <sup>[3]</sup> topic for more information.

Start the engine and recheck the DTCs with the Honda MCS.

Is the DTC 23-1 indicated?

YES – GO TO STEP 2



NO – Intermittent failure or loose/poor contact in the harness connectors

## **Step 2: O2 Sensor Heater Input Voltage Inspection**

Turn the ignition switch OFF.



Disconnect the O2 sensor 4P (Black) connector from the harness.

Turn the ignition switch ON and set the stop switch to the RUN position.

Measure voltage between the wire harness side of the O2 sensor 4P (Black) connector and ground.

Connection: Black/blue (+) – Ground (-)

Standard: Battery voltage

Is there battery voltage?

YES – GO TO STEP 3.

NO – Open or short circuit in Black/blue wire.

## **Step 3: O2 Sensor Heater Line Open Circuit Inspection**

Turn the ignition switch OFF and disconnect the ECM 33P (Black) connector.

Use a multimeter set to read ohms of resistance.

Check for continuity at the White/black and White/black wires between the O2 sensor 4P (Black) connector and ECM 33P (Black) connector on the wire harness sides.

**Special Tool – Test probe:** 07ZAJ-RDJA110

Connection: White/black to White/black

Is there continuity?

YES – GO TO STEP 4

NO – Open circuit in White/black wire

#### **Step 4: O2 Sensor Heater Line Short Circuit Inspection**

Start with the O2 sensor 4P (Black) connector and the ECM 33P (Black) connector both still unplugged.

Use a multimeter set to read ohms of resistance.

Check for continuity at the White/black wire on the harness side of the O2 sensor 4P (Black) connector and a good ground.

Connection: White/black to Ground

Is there continuity?

YES – Short circuit in White/black wire

YES – GO TO STEP 5

#### **Step 5: O2 Sensor Heater Resistance Inspection**



Measure the sensor heater coil resistance across the two bottom terminals on the sensor side of the connector.

Connection: White to White

Standard: 13.0 – 19.0  $\Omega$  (20°C/68°F)

Is the resistance within the standard value?

YES – Replace the ECM with a known good one and recheck

NO – Faulty O2 sensor.



## DTC 29 (IACV)



NOTE: Before starting the inspection, check for loose or poor contact on the IACV 4P (Black) connector and ECM 33P (Black) connector, then recheck the DTC.

Probable causes:

Open or short circuit in wires (Blue/white, Blue/black, Brown/white, or Brown/Black) between the IACV and the ECM

Faulty IACV

Faulty ECM

### DTC 29-1 (P0511 IACV)

#### Step 1: Recheck DTC

Erase the DTC's. See the [FI System Self-Diagnostics](#) <sup>[3]</sup> topic for more information.

Turn the ignition switch ON and the engine stop switch to RUN.

Check the IACV with the Honda MCS.

Is the DTC 29-1 indicated?

YES – GO TO STEP 2

NO – Intermittent failure or loose/poor contact in the harness connectors

#### Step 2: IACV Short Circuit to Ground Inspection

Turn the ignition switch OFF.



Disconnect the ECM 33P (Black) connector and the IACV 4P (Black) connector.

Check for continuities between each terminal of the IACV 4P connector of the wire side and ground.

Connections:

Blue/white to Ground  
Brown/white to Ground  
Brown/black to Ground  
Blue/black to Ground  
Is there continuity?

YES – Short circuit in wire(s)

NO – GO TO STEP 3.

### **Step 3: IACV Open Circuit Inspection**

Start with both the valve and ECM connectors still unplugged.

Check the continuities between the ECM 33P connector and IACV 4P connector of the wire side.

Connections:

Blue/white to Blue/white  
Brown/white to Brown/white  
Brown/black to Brown/black  
Blue/black to Blue/black

**Special Tool – Test probe:** 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 4

NO – Open circuit in wire(s)



#### **Step 4: IACV Resistance Inspection**

Measure the resistance at the IACV 4P connector at the motor/valve side.

Connections:

Blue/white to Blue/black (the two outer terminals)

Brown/white to Brown/black (the two inner terminals)

Standard: 110 -150 ohms (25°C/77°F)

Is the resistance within specification?

YES – GO TO STEP 5

NO – Faulty IACV

#### **Step 5: IACV Internal Short Circuit Inspection**

Measure the resistance at the IACV 4P connector at the motor/valve side.

Connections:

Terminal A and B on the IACV connector (the two terminals on the left side of the connector)

Terminal C and D on the IACV connector (the two terminals on the other side of the connector)

**Standard:** No continuity

Is there continuity?

YES – Faulty IACV

NO – Replace the ECM with a known good one, and recheck

### **DTC 33-2 (EEPROM)**

#### **DTC 33-2 (P062F EEPROM) Diagnosis**

##### **Step 1: Recheck DTC**

Erase the DTC's. See the [FI System Self-Diagnostics](#) <sup>[3]</sup> topic for more information.

Turn the ignition switch ON and the engine stop switch to RUN.

Recheck the ECM EEPROM.

Is the DTC 33-2 indicated?

YES – Replace the ECM with a known good one, and recheck.

NO – Intermittent failure or loose/poor contact in the harness connector

### **DTC 54 (BANK ANGLE SENSOR)**



The bank angle sensor is mounted on the left side of the chassis on the back of the same bracket (and under the same rubber protective cover) as the ECM.

Note: Before starting DTC testing, check for loose or poor contact on the bank angle sensor connector and the ECM connector, then recheck for DTCs.

Probable causes:

Open circuit in Black/blue wire between the battery and bank angle sensor  
Open or short circuit in Red/Blue wire between the bank angle sensor and the ECM  
Faulty bank angle sensor  
Faulty ECM

### **DTC 54-1 (P1000 Bank Angle Sensor Low Voltage)**

#### **Step 1: Recheck DTC**

Erase the DTC's. See the [FI System Self-Diagnostics](#) <sup>[3]</sup> topic for more information.

Turn the ignition switch ON and the engine stop switch to RUN.

Check the bank angle sensor voltage with the Honda MCS.

Is about 0 V indicated?

YES – GO TO STEP 2

NO – Intermittent failure or loose/poor contact at the harness connectors

#### **Step 2: Bank Angle Sensor Power Input Voltage Inspection**

Turn the ignition switch OFF.





Disconnect the bank angle sensor 2P connector.

Turn the ignition switch ON and the engine stop switch to RUN.

Measure the voltage at the bank angle sensor connector of the wire side.

Connection: Black/blue (+) to Ground (-)

Standard: Battery voltage

Is battery voltage present?

YES – GO TO STEP 3

NO – Open or short circuit in Black/blue wire

### **Step 3: Bank Angle Sensor Output Line Inspection**

Turn the ignition switch OFF.

Unplug the ECM 33p (Black) connector.

Check the continuity between the bank angle sensor 2P connector of the wire side and first the proper terminal of the ECM harness, and then with a good ground.

Connection: Red/blue to Red/blue, then check Red/blue to Ground

Is there an open between the two connectors, or a short to ground?

YES – repair fault in the Red/blue wire

NO – GO TO STEP 4.

### **Step 4: Bank Angle Sensor Inspection**

Replace the bank angle sensor with a known good one. See the [Sensors](#) <sup>[4]</sup> topic for more information.

Connect the bank angle sensor 2P connector and ECM 33P connector.

Erase the DTC's. See the [FI System Self-Diagnostics](#) <sup>[3]</sup> topic for more information.

Turn the ignition switch ON and the engine stop switch to RUN.

Check the bank angle sensor with the Honda MCS.

Is DTC 54-1 indicated?

YES – Replace the ECM with a known good one, and recheck.

NO – Faulty original bank angle sensor

### **DTC 54-2 (P1001 Bank Angle Sensor High Voltage)**

#### **Step 1: Recheck DTC**

Turn the ignition switch ON and the engine stop switch to RUN.

Check the bank angle sensor voltage with the Honda MCS.

Tilt the bank angle sensor and watch the voltage.

Does the voltage decrease?

YES – Replace the ECM with a known good one, and recheck

NO – Replace the bank angle sensor with a known good one, and recheck

### **DTC 88 (EVAP PURGE CONTROL SOLENOID VALVE)**



The EVAP purge control solenoid valve is mounted to the canister which is located just behind the cylinder and above the crankcase.

Before starting DTC testing, check for loose or poor contact on the EVAP purge control solenoid valve 2P connector and 33P ECM connector.



### **Step 1: EVAP Purge Control Solenoid Valve System Inspection**

Erase the DTC's. See the [FI System Self-Diagnostics](#) <sup>[3]</sup> topic for more information.

Turn the ignition switch ON and the engine stop switch to RUN.

Start and run the engine, then check the EVAP purge control solenoid valve with the Honda MCS.

Is the DTC 88-1 indicated?

YES – GO TO STEP 2

NO – Intermittent failure or loose/poor contact in the harness connector

### **Step 2: EVAP Purge Control Solenoid Valve Input Voltage Inspection**

Turn the ignition switch OFF.



Unplug the EVAP purge control solenoid valve 2P connector.

Turn the ignition switch ON and the engine stop switch to RUN.

Measure the voltage between the EVAP purge control solenoid valve connector of the wire harness side and a good ground.

Connection: Black/blue (+) to Ground (-)

Standard: Battery voltage

Is the voltage equal to Battery voltage?

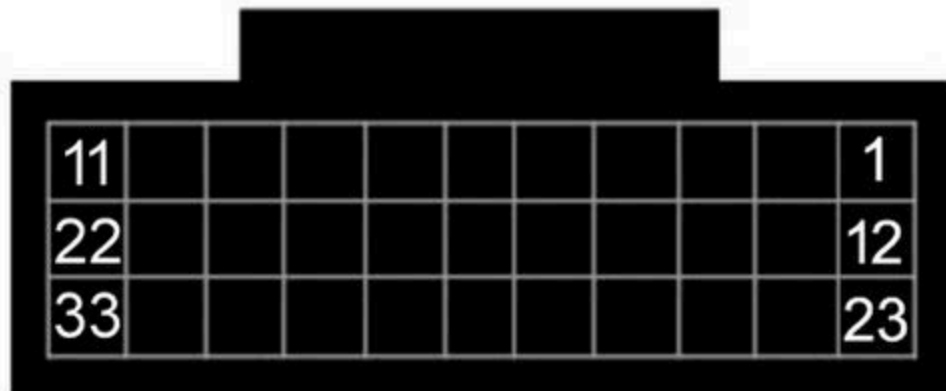
YES – GO TO STEP 3

NO – Open or short circuit in Black/blue wire

### **Step 3: EVAP Purge Control Solenoid Valve Signal Line Open Circuit Inspection**

Turn the ignition switch OFF.

Unplug the ECM 33P (Black) connector for access.



HARNESS SIDE

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Check the continuity between the EVAP purge control solenoid valve 2P connector and the ECM 33p connector both on the wire harness side of the connectors.

Connection: ECM harness connector terminal 33 for the Yellow/black wire – Yellow/black wire in the EVAP purge control solenoid valve 2P harness connector.

**Special Tool – Test probe:** 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 4

NO – Open circuit in Yellow/black wire

#### **Step 4: EVAP Purge Control Solenoid Valve Signal Line Short Circuit Inspection**

Make sure the ECM 33P connector is still unplugged to protect the ECM.

Check for continuity between the EVAP purge control solenoid valve connector terminal for the Yellow/black wire (on the harness side) and a good ground.

Connection: Yellow/black harness terminal – Ground

Is there continuity?

YES – Short circuit in the Yellow/black wire

NO – GO TO STEP 5

#### **Step 5: EVAP Purge Control Solenoid Valve Resistance Inspection**

Make sure the ignition switch is OFF.



Measure the resistance at the EVAP purge control solenoid valve terminals.

Standard: 30 – 34  $\Omega$  (20°C/68°F)

Is the resistance within 30 – 34  $\Omega$  (20°C/68°F)

YES – Replace the ECM with a known good one and recheck

NO – Faulty EVAP purge control solenoid valve

## **DTC 89 (PAIR CONTROL SOLENOID VALVE)**



The PAIR control solenoid valve is mounted to the back of the radiator and cooling fan assembly on the right side of the motorcycle.

Before starting DTC testing, check for loose or poor contact on the PAIR control solenoid valve 2P connector and 33P ECM connector.

### **DTC 89-1 (P0412 PAIR CONTROL SOLENOID VALVE)**

#### **Step 1: PAIR Control Solenoid Valve System Inspection**

Erase the DTC's. See the [FI System Self-Diagnostics](#) <sup>[3]</sup> topic for more information.

Turn the ignition switch ON and the engine stop switch to RUN.

Start and run the engine, then check the PAIR control solenoid valve with the Honda MCS.

Is the DTC 89-1 indicated?

YES – GO TO STEP 2

NO – Intermittent failure or loose/poor contact in the harness connector

#### **Step 2: PAIR Control Solenoid Valve Input Voltage Inspection**

Turn the ignition switch OFF.



Unplug the PAIR control solenoid valve 2P connector.

Turn the ignition switch ON and the engine stop switch to RUN.

Measure the voltage between the PAIR control solenoid valve connector of the wire harness side and a good ground.

Connection: Black/blue (+) to Ground (-)

Standard: Battery voltage

Is the voltage equal to Battery voltage.

YES – GO TO STEP 3

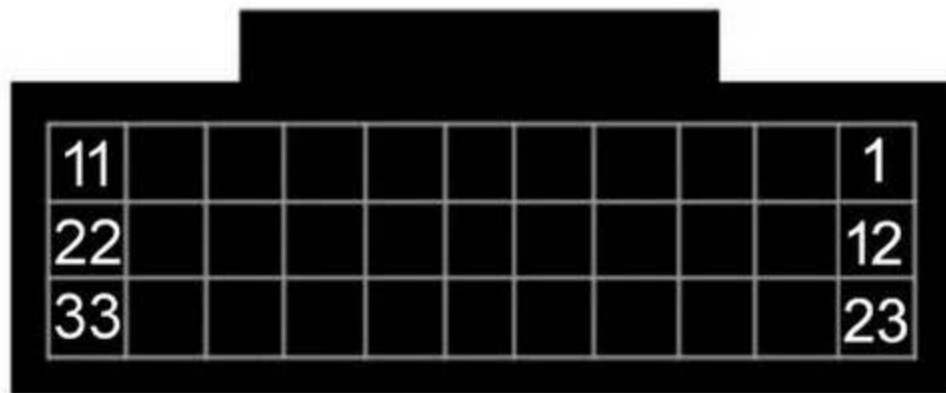
NO – Open circuit in Black/blue wire

### **Step 3: PAIR Control Solenoid Valve Signal Line Open Circuit Inspection**

Turn the ignition switch OFF.

Unplug the ECM 33P (Black) connector for access.





HARNESS SIDE

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Check the continuity between the PAIR control solenoid valve 2P connector and the ECM 33p connector both on the wire harness side of the connectors.

Connection: ECM harness connector terminal 28 for the Orange/green wire – Orange/green wire in the PAIR control solenoid valve 2P harness connector.

**Special Tool – Test probe:** 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 4

NO – Open circuit in Orange/green wire

#### **Step 4: PAIR Control Solenoid Valve Signal Line Short Circuit Inspection**

Make sure the ECM 33P connector is still unplugged to protect the ECM.

Check for continuity between the PAIR control solenoid valve connector terminal for the Orange/green wire (on the harness side) and a good ground.

Connection: Orange/green harness terminal – Ground

Is there continuity?

YES – Short circuit in the Orange/green wire

NO – GO TO STEP 5

#### **Step 5: PAIR Purge Control Solenoid Valve Resistance Inspection**

Make sure the ignition switch is still OFF and the solenoid wiring is disconnected.

Measure the resistance at the PAIR control solenoid valve terminals.

Standard: 24 – 28  $\Omega$  (20°C/68°F)

Is the resistance within 24 – 28  $\Omega$  (20°C/68°F)

YES – Replace the ECM with a known good one and recheck

NO – Faulty PAIR control solenoid valve

## **DTC 91 (IGNITION COIL PRIMARY CIRCUIT)**



The ignition coil is mounted to the frame right behind the steering head, just above and in front of the cylinder head.

Before starting DTC testing, check for loose or poor contact on the ignition coil 1P primary connector and 33P ECM connector.

### **DTC 91-1 (P0351 IGNITION COIL PRIMARY CIRCUIT)**

#### **Step 1: Ignition Coil Primary Circuit System Inspection**

Erase the DTC's. See the [FI System Self-Diagnostics](#) <sup>[3]</sup> topic for more information.

Turn the ignition switch ON and the engine stop switch to RUN.

Check the ignition coil with the Honda MCS.

Is the DTC 91-1 indicated?

YES – GO TO STEP 2

NO – Intermittent failure or loose/poor contact in the harness connector

#### **Step 2: Ignition Coil Primary Circuit Input Voltage Inspection**

Turn the ignition switch OFF.





Unplug the ignition coil terminal connector for the Black/blue wire from the coil.

Turn the ignition switch ON and the engine stop switch to RUN.

Measure the voltage between the Black/blue wire of the wire harness side and a good ground.

Connection: Black/blue (+) to Ground (-)

Standard: Battery voltage

Is the voltage equal to Battery voltage.

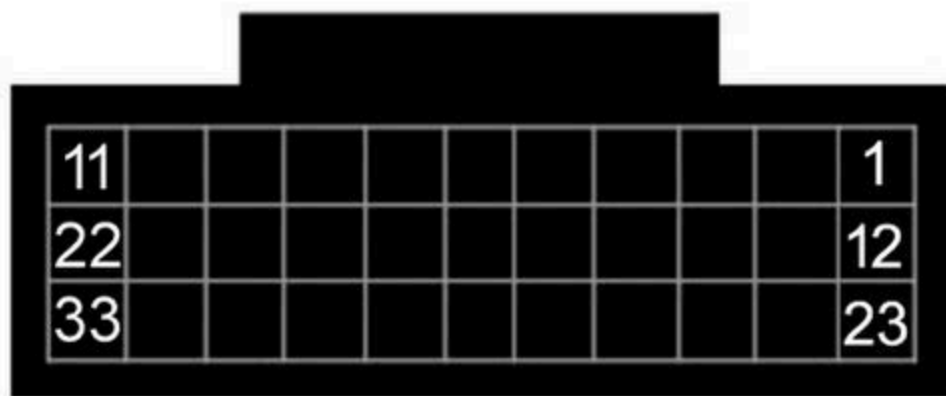
YES – GO TO STEP 3

NO – Open circuit in Black/blue wire

### **Step 3: Ignition Coil Primary Circuit Signal Line Open Inspection**

Turn the ignition switch OFF.

Unplug the ECM 33P (Black) connector for access to the harness.



HARNESS SIDE

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Check the continuity between the ignition coil primary connector for the Green/red wire and the ECM 33p connector both on the wire harness side of the connectors.

Connection: ECM harness connector terminal 11 for the Green/red wire – Green/red wire for the ignition coil.

**Special Tool – Test probe:** 07ZAJ-RDJA110

Is there continuity?

YES – GO TO STEP 4

NO – Open circuit in Green/red wire

#### **Step 4: Ignition Coil Primary Circuit Signal Line Short Circuit Inspection**

Make sure the ignition switch is OFF.

Check for continuity between the ignition coil primary circuit Green/red wire (on the harness side) and a good ground.

Connection: Green/red harness terminal – Ground

Is there continuity?

YES – Short circuit in the Green/red wire

NO – GO TO STEP 5

#### **Step 5: Ignition Coil Inspection**

Replace the ignition coil with a known good one.

Erase the DTC's. See the [FI System Self-Diagnostics](#) <sup>[3]</sup> topic for more information.

Check the ignition coil with the Honda MCS.



Is DTC 91-1 indicated?

YES – Replace the ECM with a known good one, and recheck

NO – Faulty original ignition coil

URLs in this post:

[1] ECM: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/ecu/>

[2] Throttle Body: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/throttle-body/>

[3] FI System Self-Diagnostics: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/self-diagnostics/>

[4] Sensors: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/sensors/>

[5] Fuel Pump: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/fuel-pressure-regulator/>

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## - Honda CRF300L Service Manual

### Cylinder Head Cover

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

10 mm Socket  
Ratchet  
Torque Wrench  
Nitrile Gloves  
Safety Glasses

Remove or perform the following for access:

Seat <sup>[1]</sup>

Bodywork <sup>[2]</sup> (side covers and fuel tank shrouds)

Fuel Tank <sup>[3]</sup> (raise and support aside or remove for access as desired)

Radiator and Fan <sup>[4]</sup> (remove with the hoses intact and support aside for access)

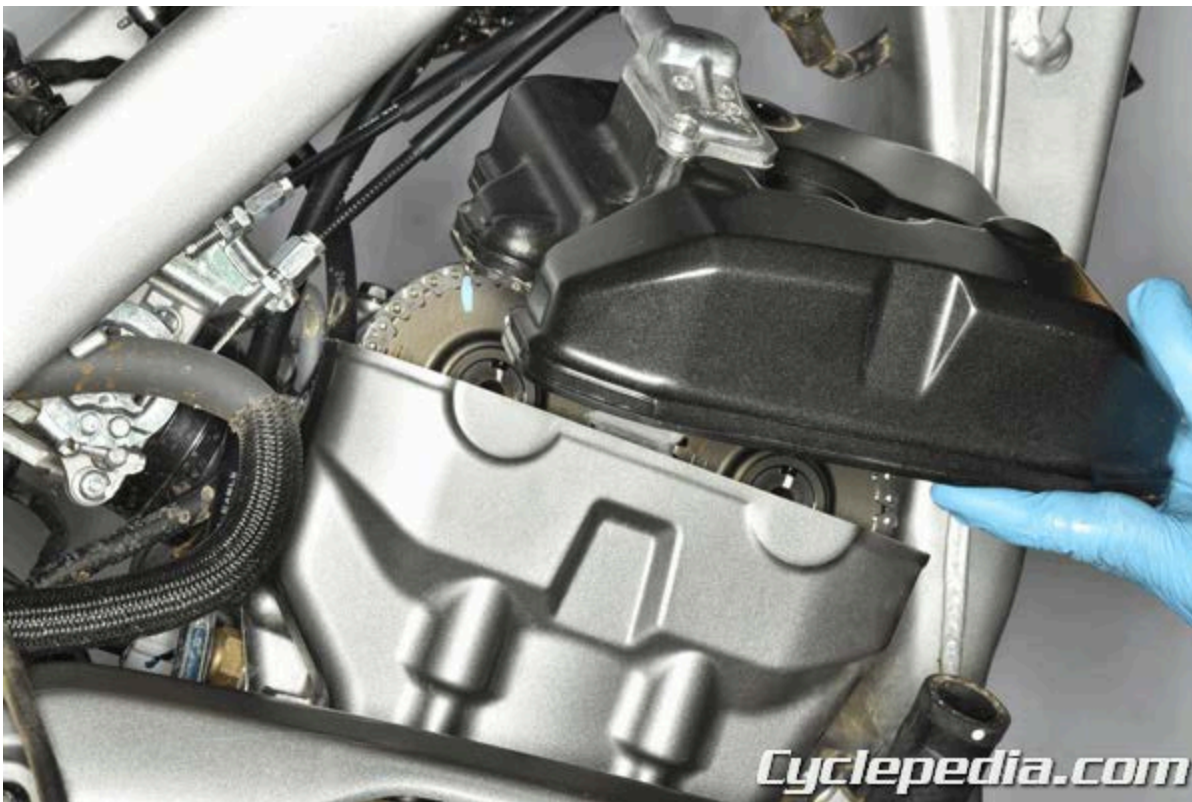
Spark Plug <sup>[5]</sup> (disconnect the plug cap)



Remove the hose from the PAIR check valve.



Remove the valve cover bolts with a 10 mm socket.



Remove the valve cover.

See the [Emissions](#) <sup>[6]</sup> topic for information on removing/inspecting the PAIR reed valve,

## **Installation**





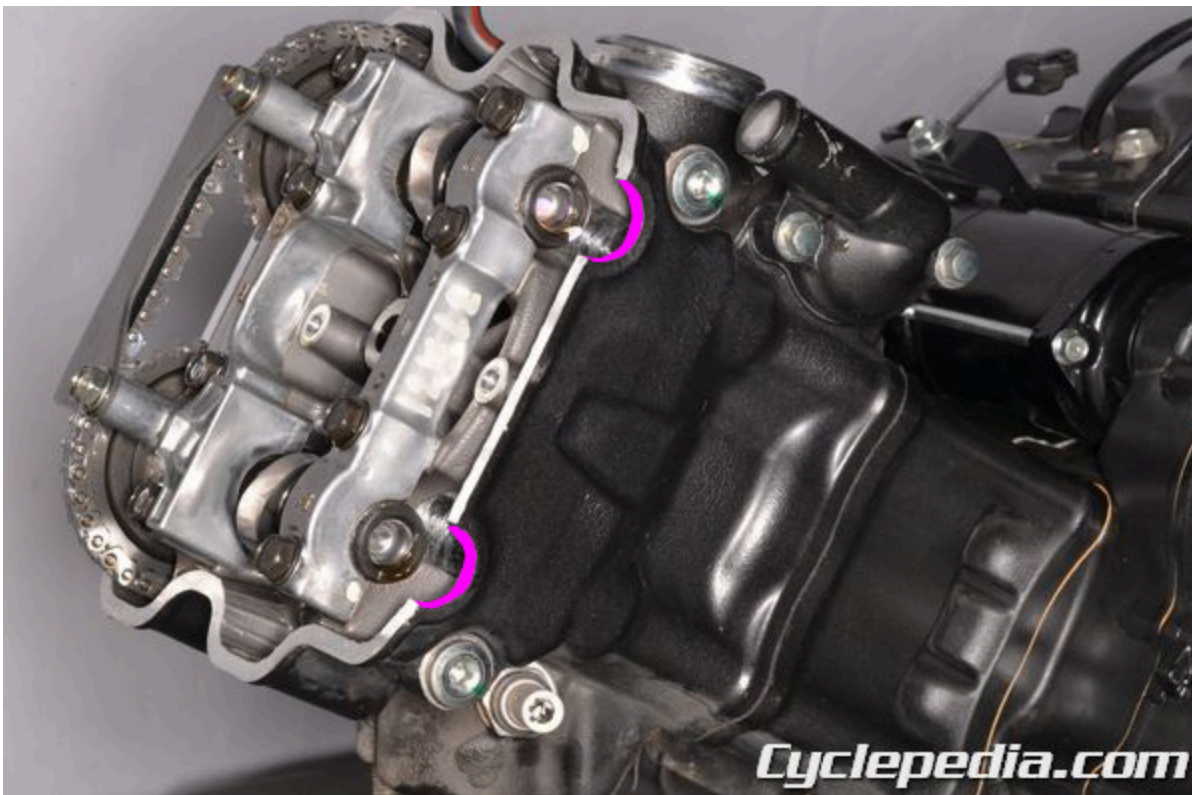
Inspect the rubber seals and replace them as necessary.



Make sure the UP mark on each bolt seal is facing out the top of the bore as shown.

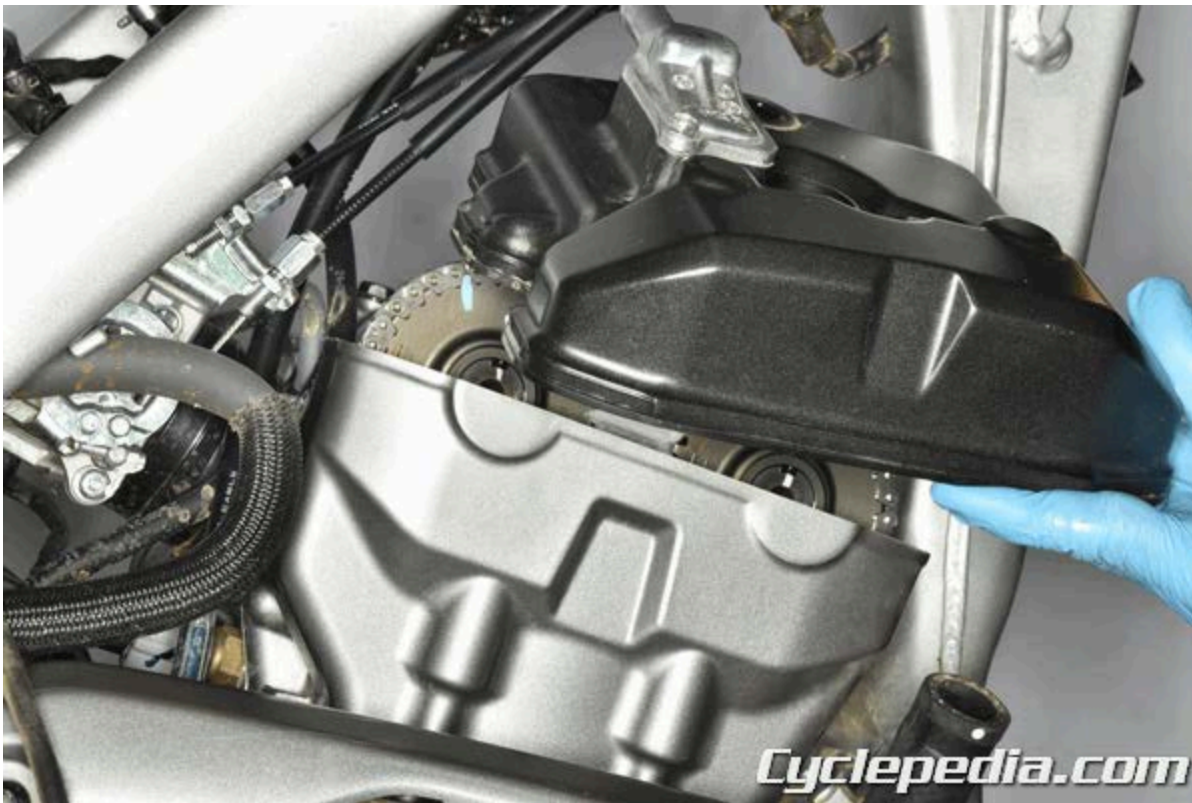


Replace the cylinder head cover gasket with a new item on installation.



Apply sealant (Three bond 5211 C, 1207B, 1215, Shin-Etsu Silicone KE45, or an equivalent) to the cylinder head semi-circular cut outs as shown.





Fit the cylinder head cover into place.



Install the two valve cover bolts with a 10 mm socket.

**Cylinder head cover bolt:** 10 N-m (1.0 kgf-m, 7 ft-lb)





Connect the hose to the PAIR check valve.

Install the following components:

Spark Plug <sup>[5]</sup> (disconnect the plug cap)

Radiator and Fan <sup>[4]</sup>

Fuel Tank <sup>[3]</sup>

Bodywork <sup>[2]</sup> (side covers and fuel tank shrouds)

Seat <sup>[1]</sup>

URLs in this post:

[1] Seat: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/seat/>

[2] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

[3] Fuel Tank: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/fuel-tank/>

[4] Radiator and Fan: <https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/radiator/>

[5] Spark Plug: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/spark-plug/>

[6] Emissions: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/emissions/>

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## - Honda CRF300L Service Manual

### Camshafts

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

5 mm Hex Driver  
6 mm Hex Driver  
10 mm Socket  
17 mm Socket  
Ratchet  
Torque Wrench  
Magnetic Pickup Tool  
Micrometer  
Nitrile Gloves  
Safety Glasses

### **Camshaft Removal**

Remove or perform the following for access:

Seat <sup>[1]</sup>

Bodywork <sup>[2]</sup> (side covers and fuel tank shrouds)

Fuel Tank <sup>[3]</sup> (raise and support aside or remove for access as desired)

Radiator and Fan <sup>[4]</sup> (remove with the hoses intact and support aside for access)

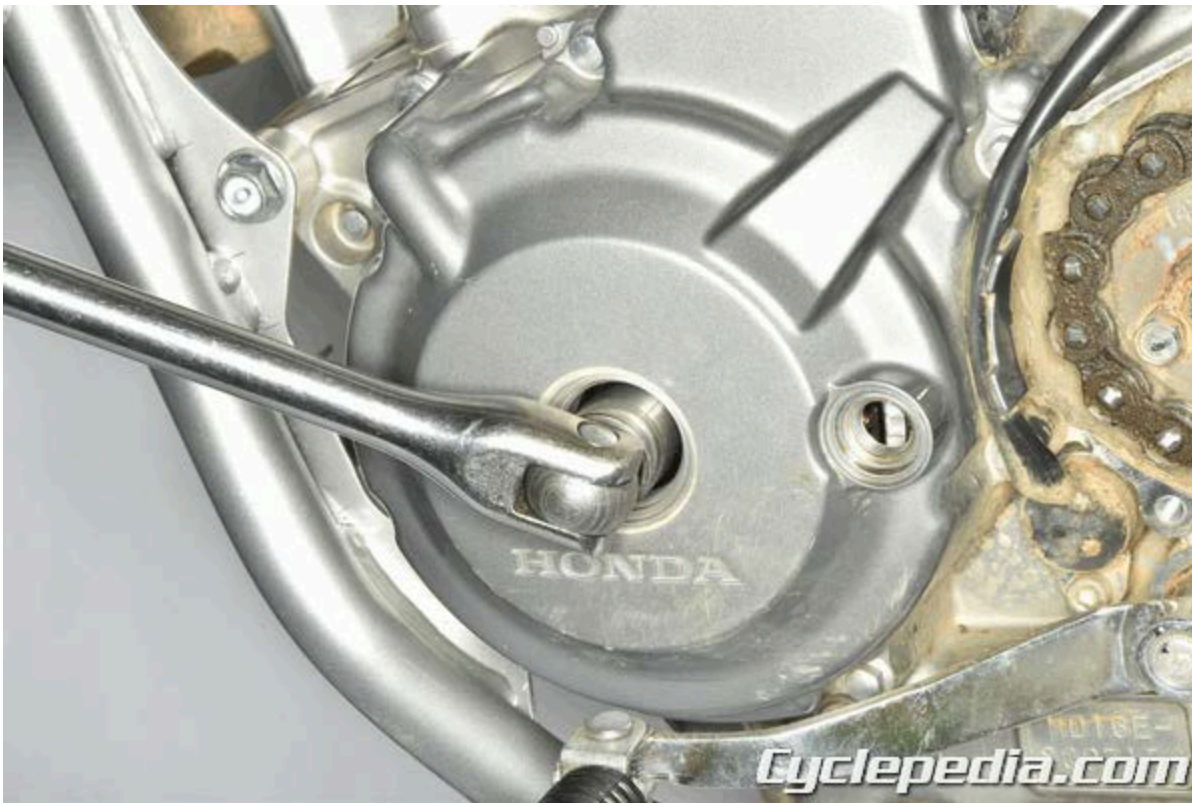
Spark Plug <sup>[5]</sup> (disconnect the plug cap)

Cylinder Head Cover <sup>[6]</sup>



Remove the timing and crankshaft hole inspection caps which are located on the left side of the engine.



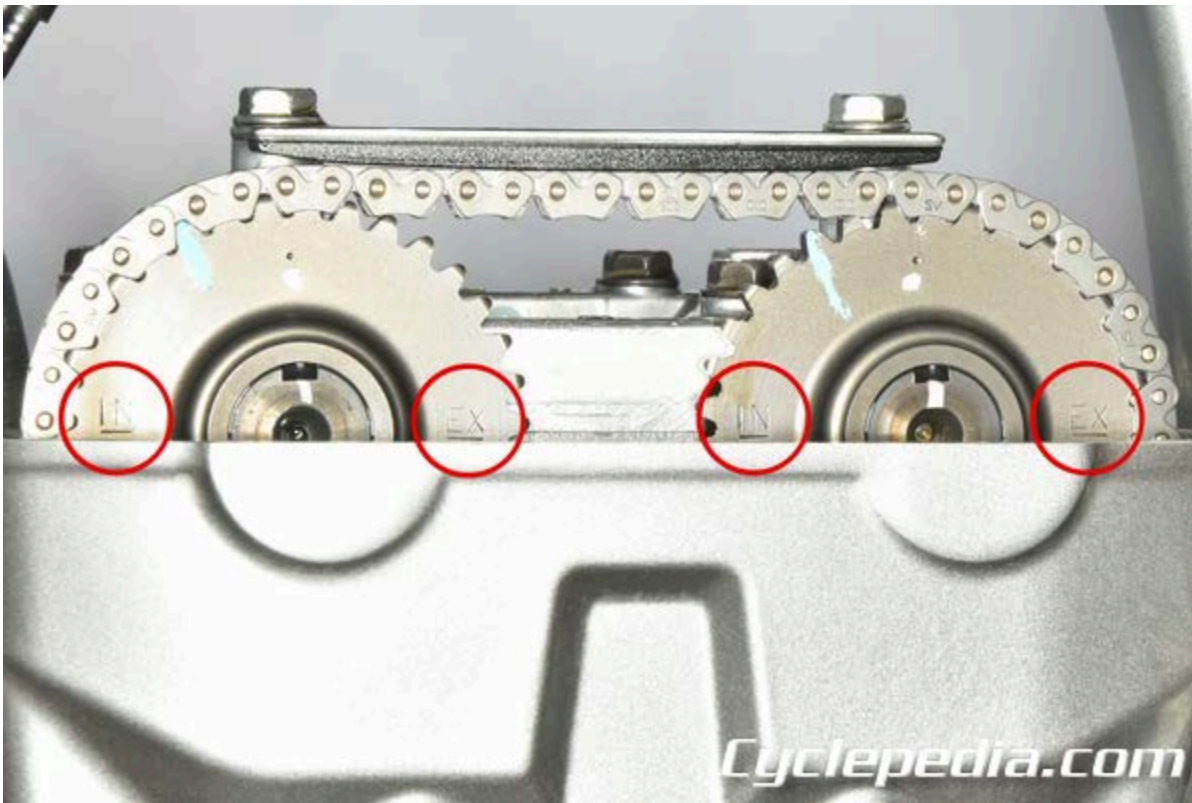


Set the motor to TDC of the compression stroke. Turn the crankshaft counterclockwise with a 17 mm socket.



Align the "T" mark with the indicator in the left crankcase cover.





The respective "IN" and "EX" marks should face out and be flush with the cylinder head as shown and the punch marks should be facing upward. If the marks are not as shown turn the crankshaft **counterclockwise** one full rotation and realign the "T" mark.

Check the valve clearance. See the [Valve Clearance](#) <sup>[7]</sup> topic for more information.



Loosen the cam chain tensioner cap bolt with a 5 mm hex driver.





Remove the cam chain tensioner cap bolt. Remove and discard the O-ring and replace with a new one come installation.

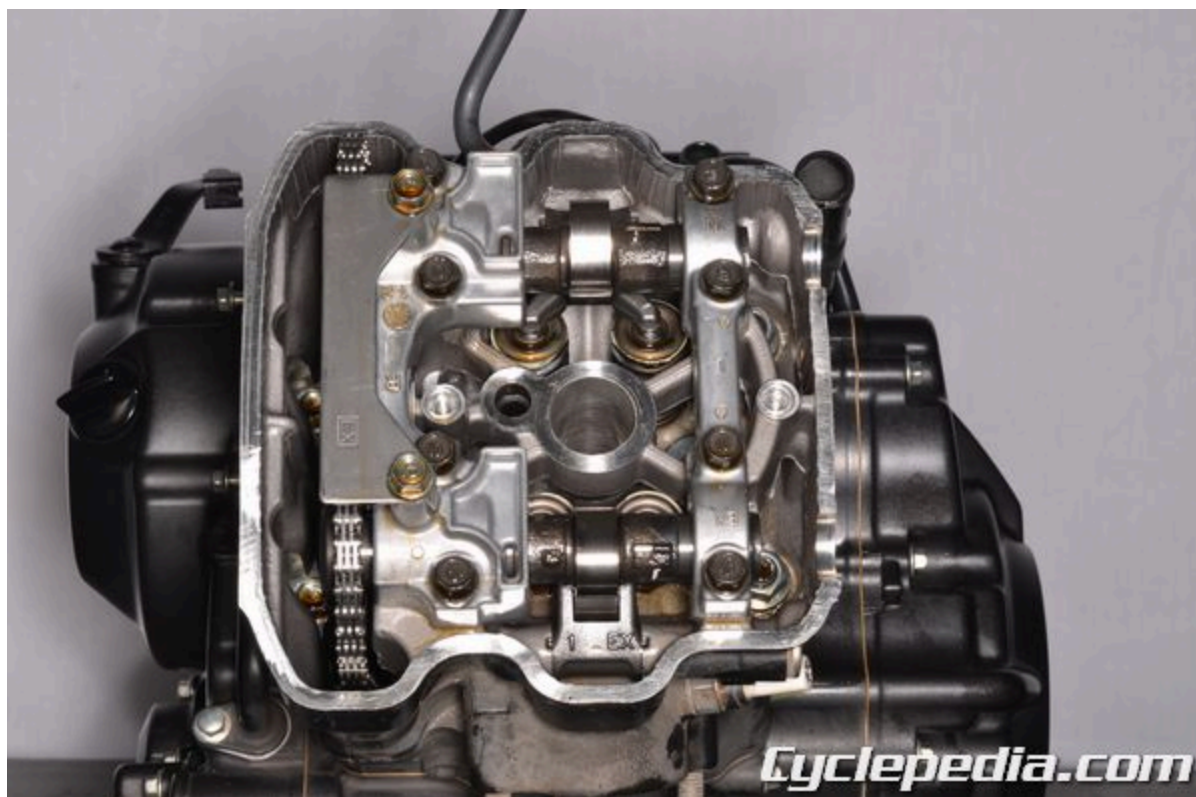


Turn the cam chain tensioner lifter shaft fully in (clockwise) and secure it using a tensioner stopper to prevent damaging the cam chain.

Note: Hold the tensioner lifter by pushing the tool while aligning the tabs of the tool with the grooves of the tensioner lifter.

**Special Tool – Cam Chain Tensioner Lifter Stopper: 070MG-0010100**

Note: If necessary for other service, remove the two tensioner lifter mounting bolts, then remove the tensioner lifter and gasket. Discard the old gasket.



Remove the two upper cam chain guide bolts with a 10 mm socket.

**WARNING: Be careful not to let these or any other bolts that are removed in this procedure fall into the crankcase.**

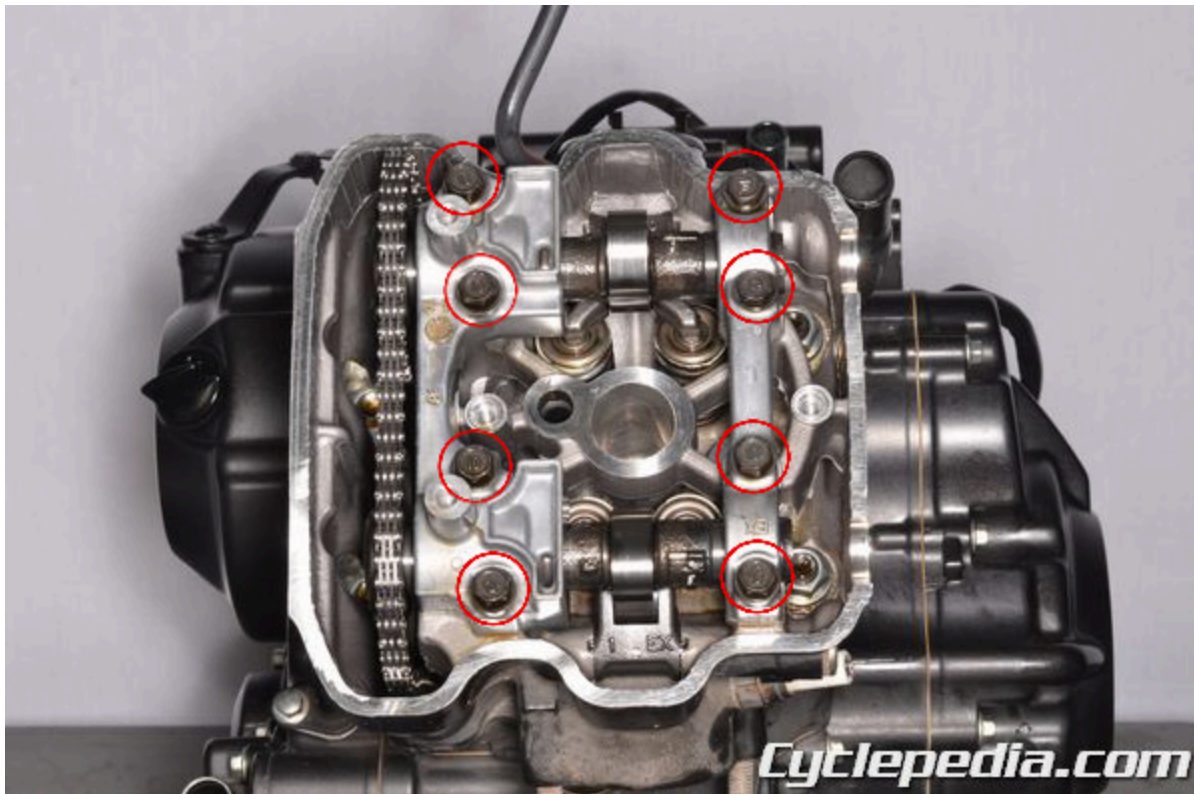




Remove the upper cam chain guide.



Inspect the upper cam chain guide for wear and damage.



Loosen the eight camshaft cap bolts in stages, a small amount at a time, in a crisscross pattern (that works from the outer bolts to the inner bolts) using a 10 mm socket. This will prevent the cap from warping and causing damage to the head, camshafts and caps.

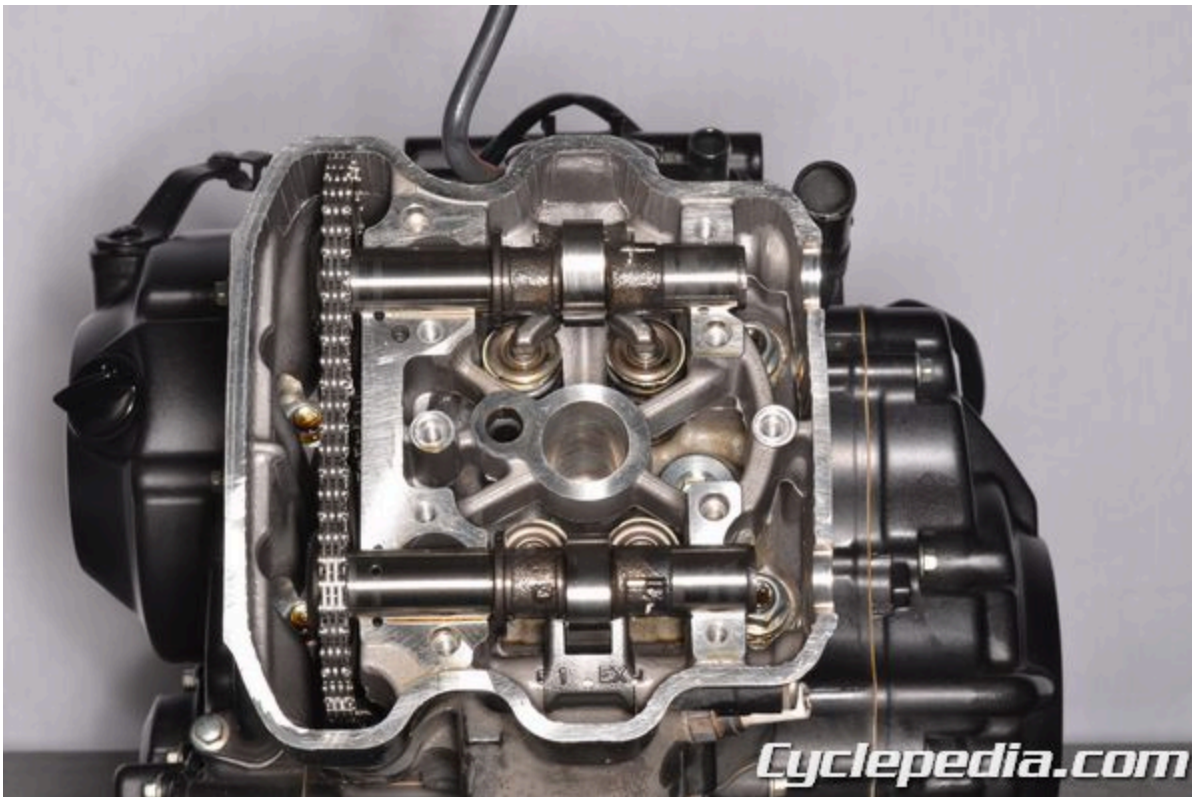


Remove camshaft cap bolts.





Remove the camshaft caps.



Make sure the cam chain doesn't fall into the bottom end of the engine.



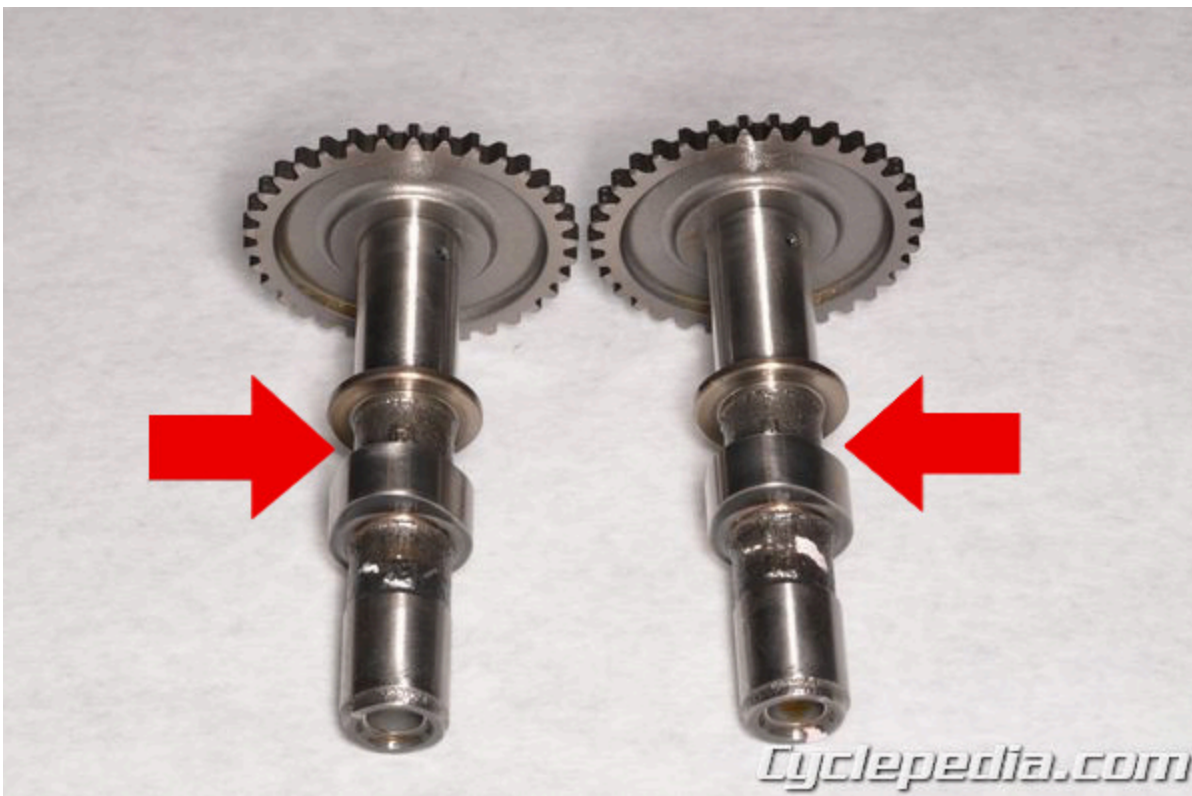
Remove the intake camshaft.





Remove the exhaust camshaft.

Secure the cam chain with a piece of wire to keep it from falling into the bottom end of the engine.



There are casting marks on camshaft to mark intake – IN and exhaust – EX.



Tilt the rocker arms up and out of the way, then remove the shims with a magnet. Be very careful not to drop the shims into the engine.

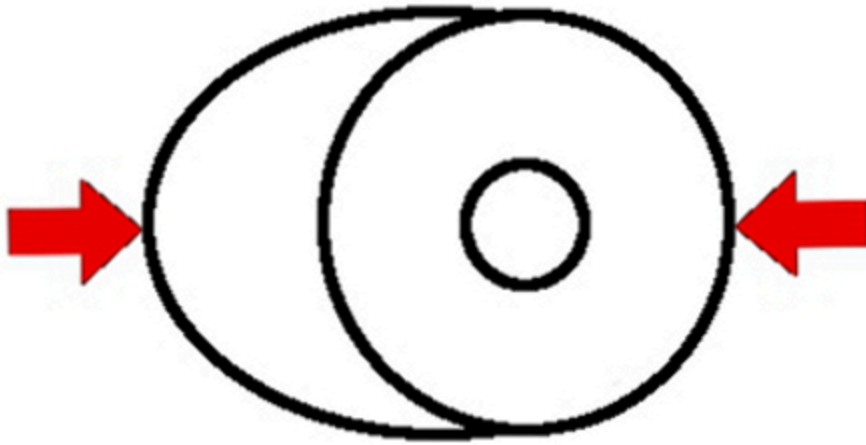
## Camshaft Inspection



Inspect the camshafts and sprockets for wear and damage.



# Height



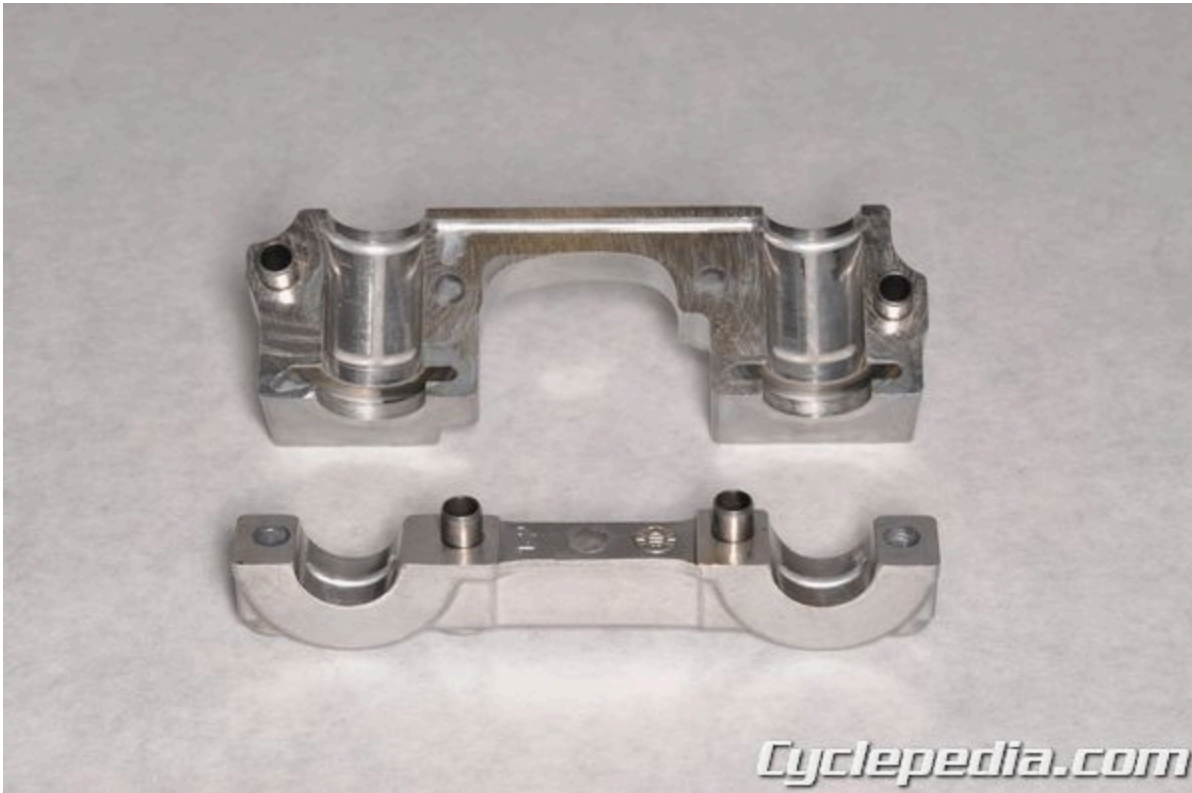
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Measure all the cam lobe heights with a micrometer to see if they are within specification.

## **Cam lobe height –**

**Intake:** 30.6878 – 30.8478 mm (1.20818- 1.21448 in) standard, 30.6578 mm (1.20700 in) limit

**Exhaust:** 30.879 – 31.039 mm (1.2157- 1.2220 in) standard, 30.849 mm (1.2145 in) limit

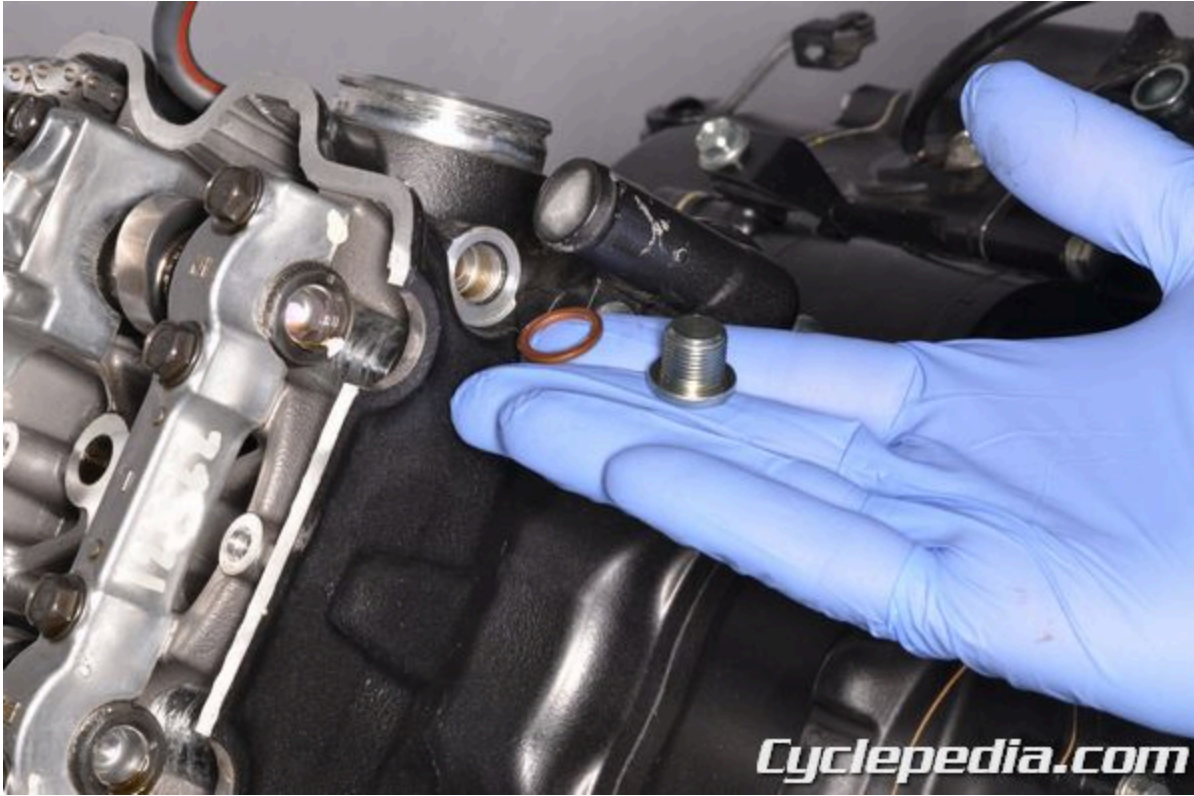


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Inspect the camshaft journals in the caps and cylinder head for wear and damage.

## **Rocker Arms**

## Removal



Remove the rocker arm shaft cover with a 6 mm hex driver. The sealing washer should be replaced with a new one on installation.



Thread a 6 mm bolt into the rocker arm shaft and pull the shaft out to free the rocker arm.





Lift out the rocker arms.

### **Inspection**



The rocker arms are marked to indicated intake or exhaust. Check the rocker arm oil holes for clogs.



Inspect the rocker arm fork wear and damage. Make sure the roller turns smoothly, but without excessive play on the arm.



Inspect the rocker arm shaft for wear and damage. Measure the outside diameter of the rocker arm shafts in several places where the rocker arm rides.





Measure the inside diameter of the rocker arm in several locations.



Calculate the rocker arm to shaft clearance.

**Rocker Arm Inner Diameter:** 10.000 – 10.015 mm (0.3937 – 0.3943 in) standard, 10.055 mm (0.3959 in) limit

**Rocker Arm Shaft Outer Diameter:** 9.972 – 9.987 mm (0.3926 – 0.3932 in)

## Installation



Lubricate the rocker arms and rollers with a mixture of molybdenum grease and fresh engine oil.



Install the rocker arms to their correct positions.



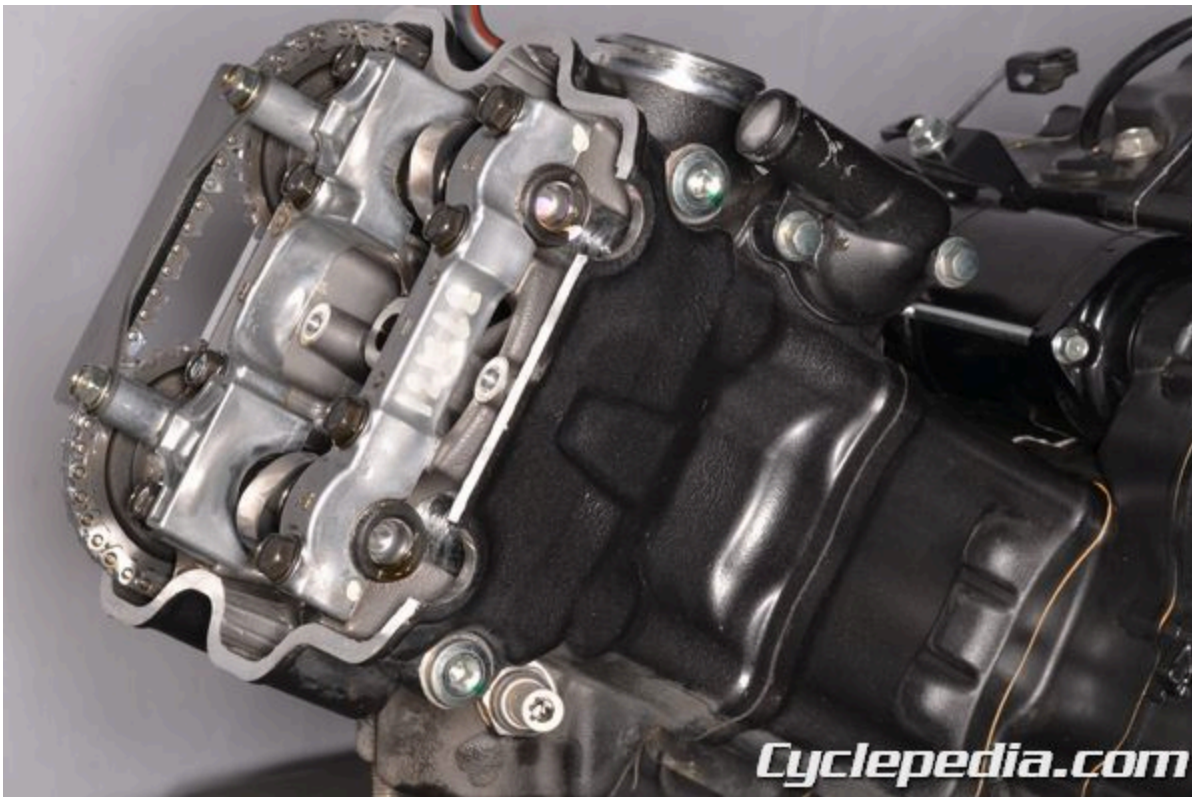


Lubricate the rocker arm shafts with a mixture of molybdenum grease and fresh engine oil and fit them into place.



Install the the rocker arm shaft covers with new sealing washers.

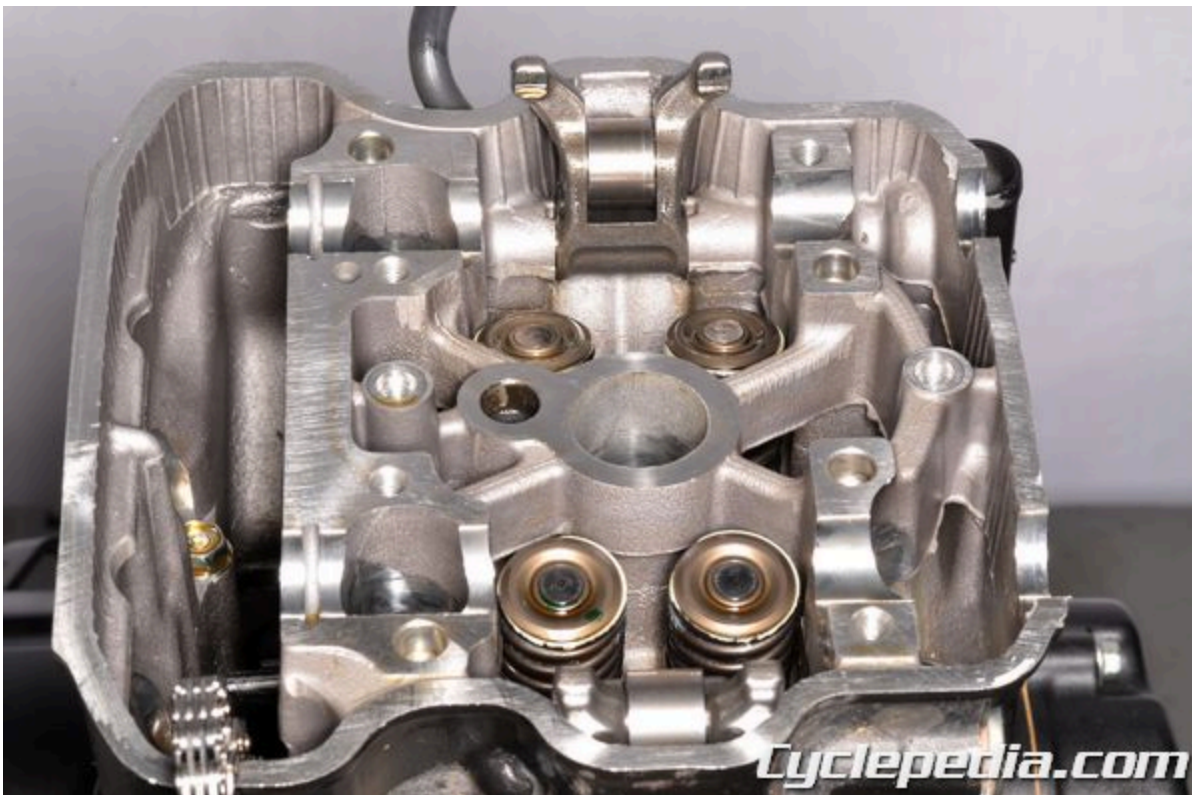




Tighten the rocker arm shaft covers securely with a 6 mm hex driver. On 2017+ models, tighten the cover bolts to specification.

**Cylinder head rocker arm shaft sealing bolt:** 15 N-m (1.5 kgf-m, 11 ft-lb)

## Camshaft Installation



Install the correct shims onto the valves. See the [Valve Clearance](#) <sup>[7]</sup> topic for more information.





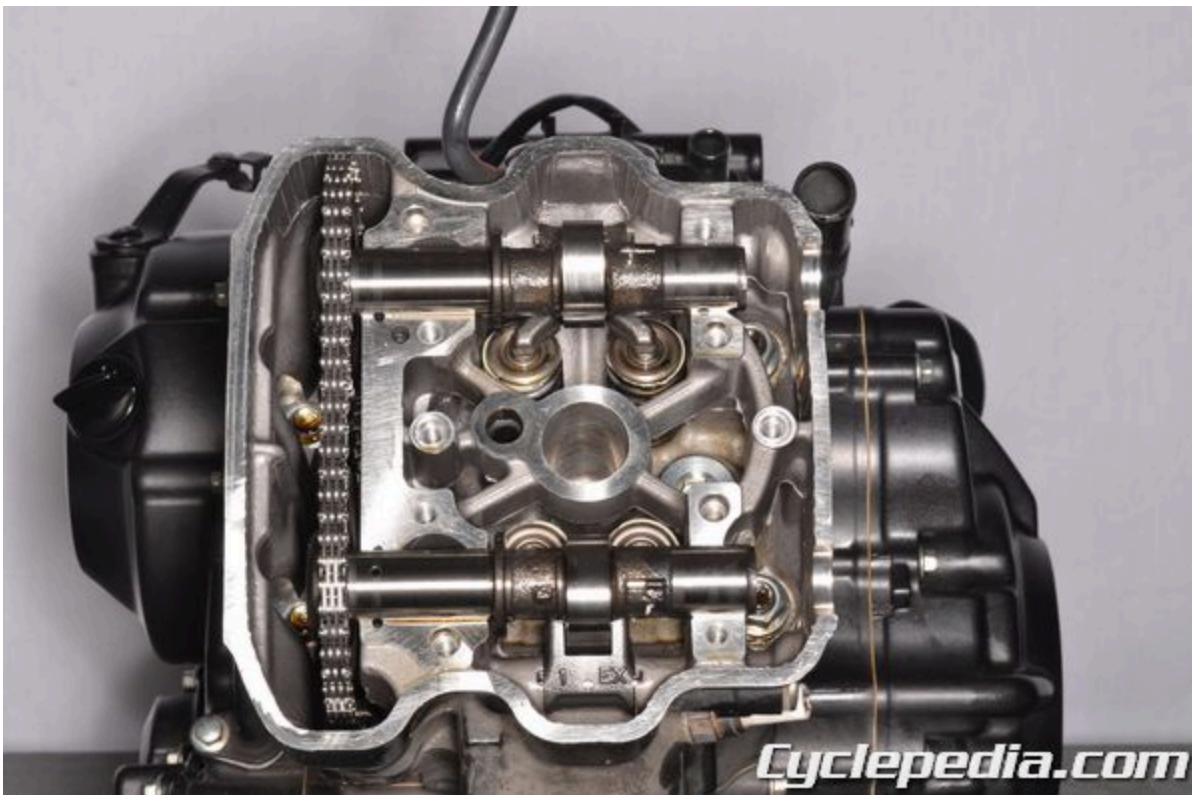
Keep the crankshaft at the TDC position while installing the camshafts. Turn the crankshaft counterclockwise with a 17 mm socket and align the "T" mark with the indicator in the left crankcase cover. Support the cam chain to keep it from binding if the crankshaft must be rotated before the camshafts are installed.



Lubricate the camshaft lobes and journal surfaces with a mixture of molybdenum grease and fresh engine oil.

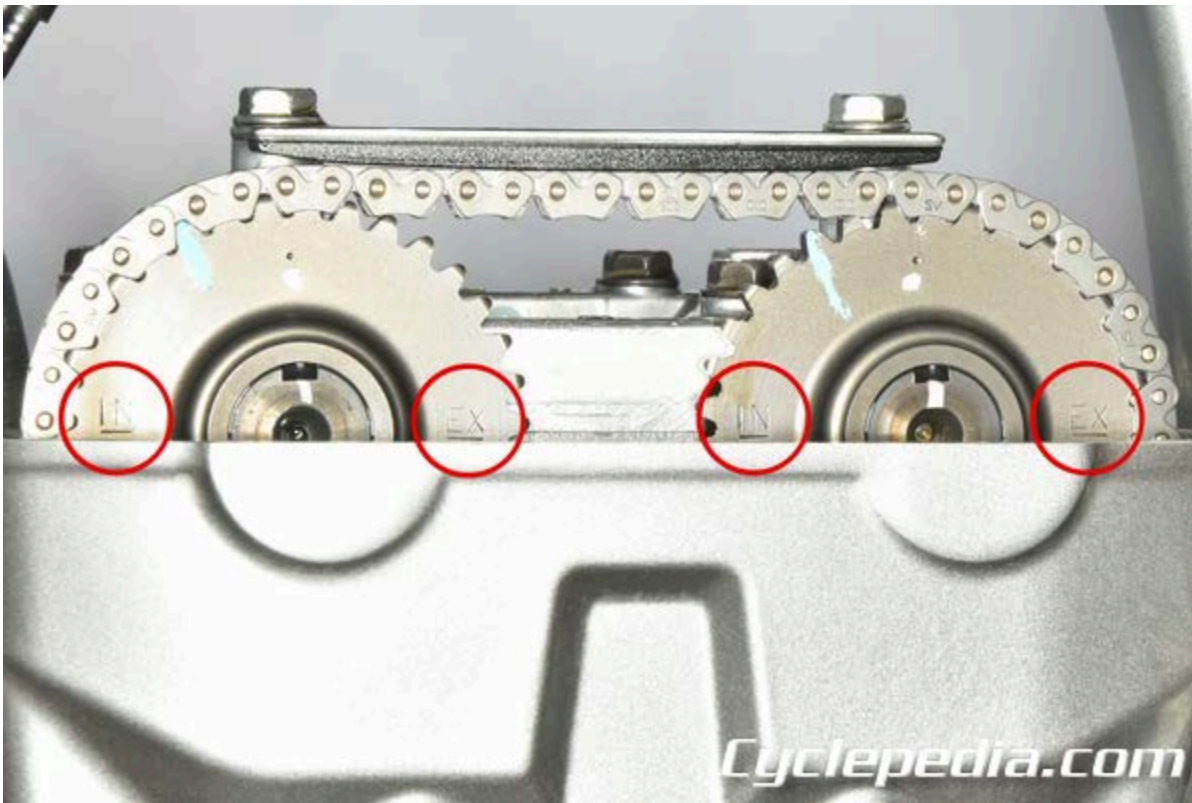


Lubricate the cam chain with fresh engine oil.



Install the intake and exhaust camshafts into their proper locations. Make sure the rocker arms are under the camshafts. Engage the cam chain to the cam sprockets.





Make sure the camshafts are set to the correct position while the crank is at TDC. The respective "IN" and "EX" marks should face out and be flush with the cylinder head as shown and the punch marks should be facing upward. If the marks are not as shown turn the crankshaft **counterclockwise** one full rotation and realign the "T" mark.



Install the right camshaft cap.

NOTE: The camshaft caps are marked for proper position (R for right, L for left).



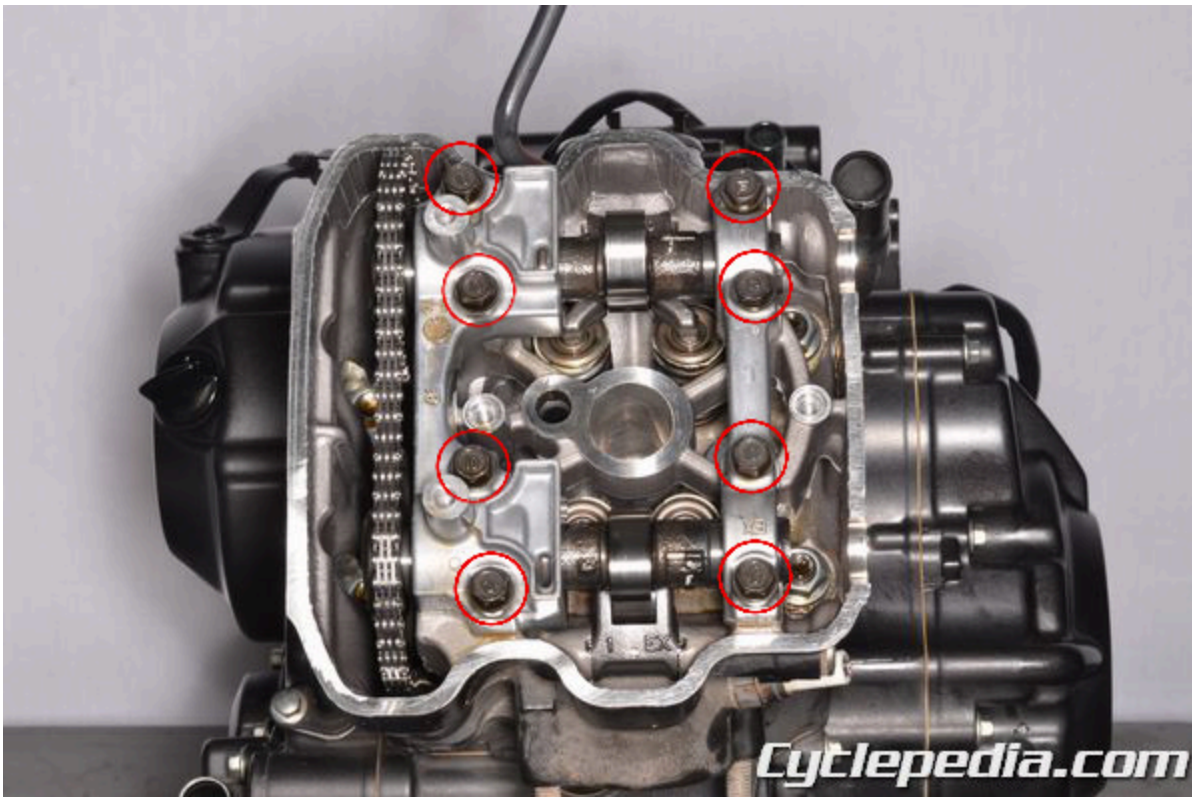
Install the left camshaft cap.

The left cap is also marked for proper orientation (IN for intake side, and EX for exhaust side).



Apply fresh engine oil to the camshaft cap bolt threads and the bolt seating surface.



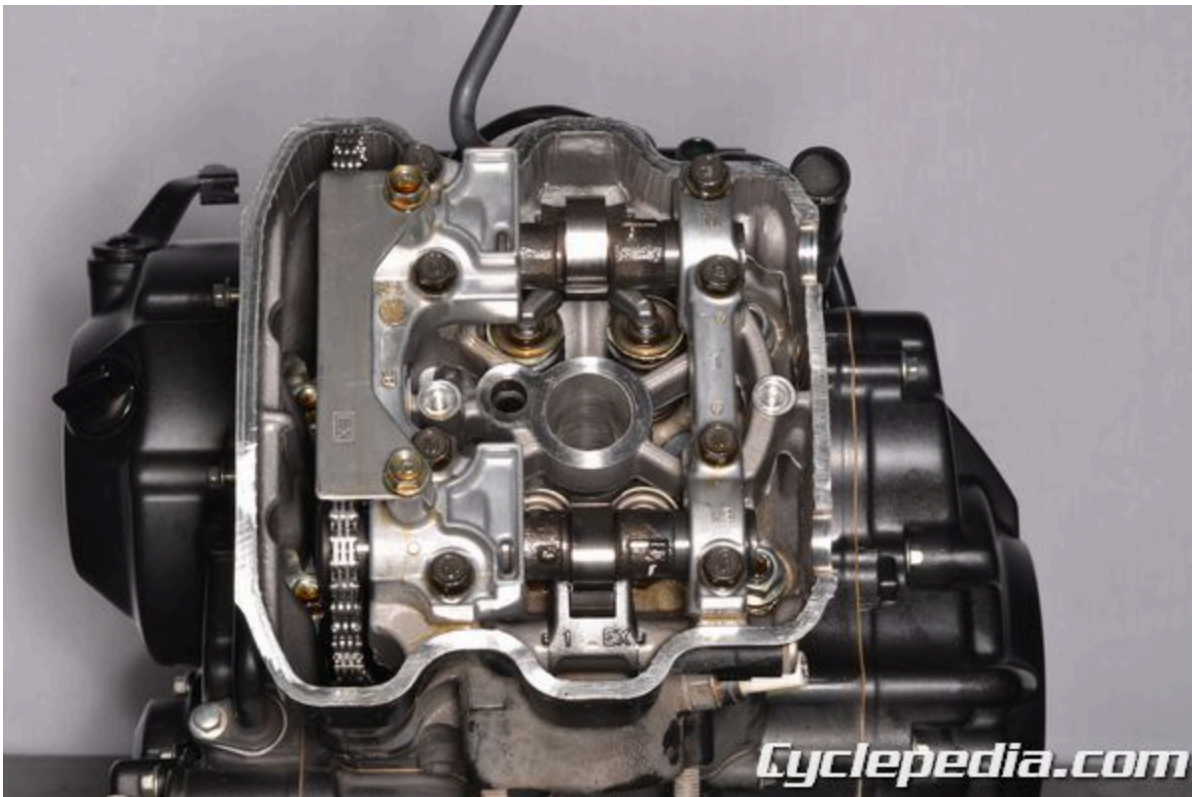


Apply oil to the threads of the camshaft cap bolts and install them. Tighten a little at a time in a crisscross pattern. Start with the inside bolts and work out. Torque the bolts to specification with a 10 mm socket.

**Camshaft holder mounting bolt (oil threads):** 12 N-m (1.2 kgf-m, 9 ft-lb)



Install the upper cam chain guide. It is stamped with EX on the end that should sit over the exhaust camshaft.



Install the upper cam chain guide bolts and tighten them securely with a 10 mm socket.



If removed, install the cam chain tensioner lifter using a new gasket and tighten the two mounting bolts securely.





Remove the tensioner stopper tool to release the cam chain tensioner.

**Special Tool – Cam Chain Tensioner Lifter Stopper: 070MG-0010100**

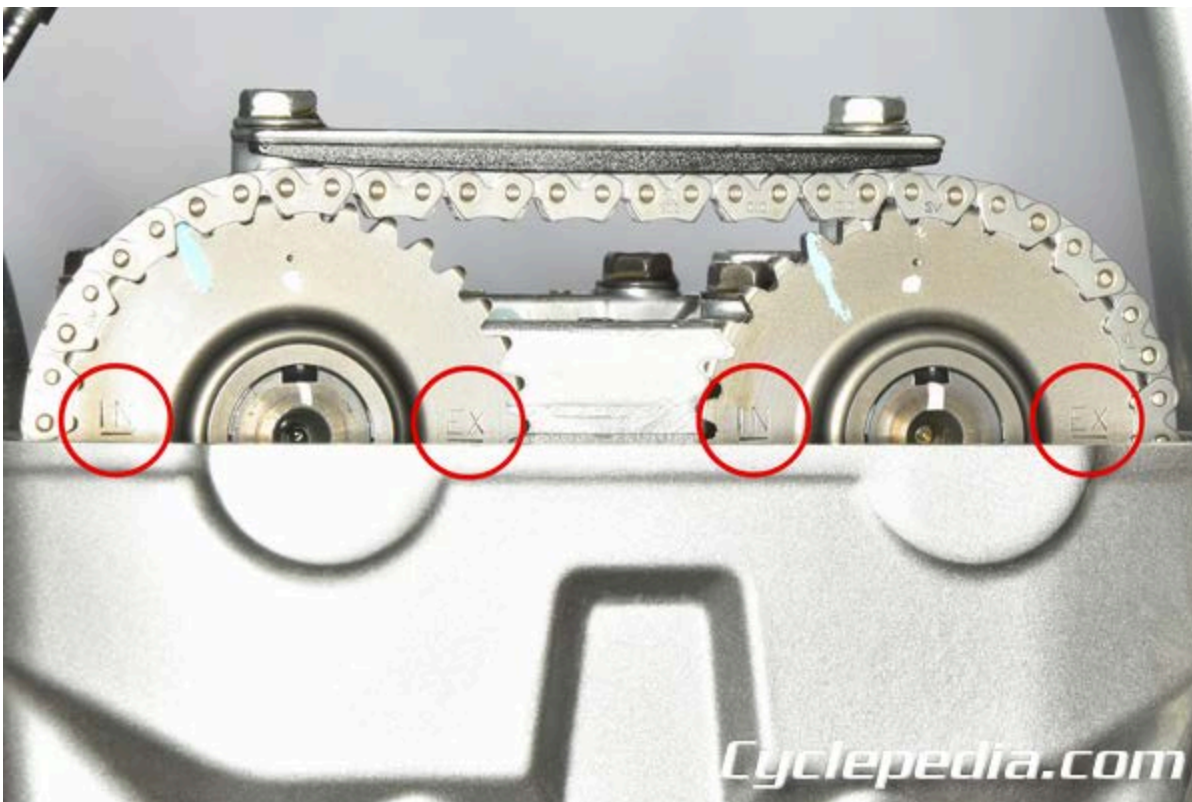


Install a new O-ring with the cam chain tensioner cap bolt. Apply engine oil to the O-ring.



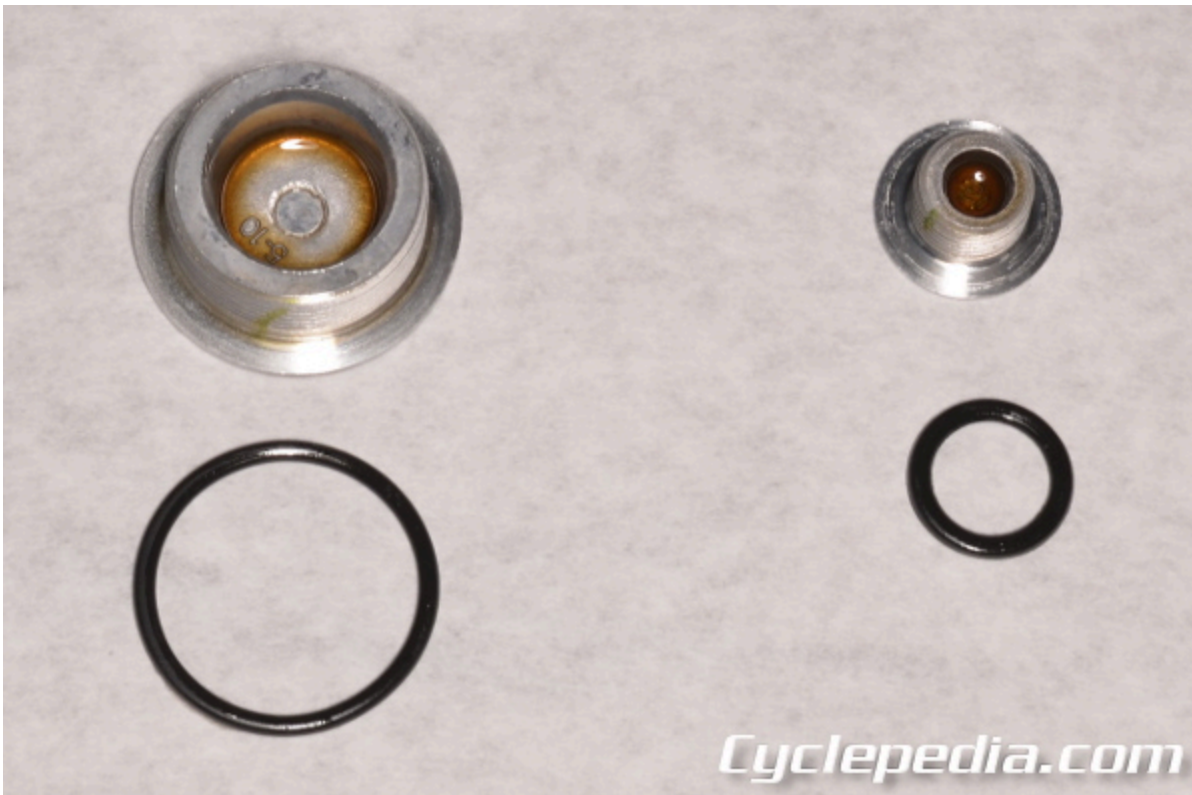
Tighten the cam chain tensioner cap bolt to specification with a 5 mm hex driver.

**Cam chain tensioner lifter plug:** 4.2 N-m (0.4 kgf-m, 3.1 ft-lb)



Turn the crankshaft counterclockwise with a 17 mm socket and double check the engine timing and valve clearance. See the [Valve Clearance](#) <sup>[7]</sup> topic for more information.





Replace the cap O-rings with new ones. Apply a light coat of engine oil to the new O-rings.



Install the timing and crankshaft hole inspection caps with a large flat blade driver.

**Crankshaft hole cap (oil threads):** 8.0 N-m (0.8 kgf-m, 5.9 ft-lb)

**Timing hole cap (oil threads):** 6.0 N-m (0.6 kgf-m, 4.4 ft-lb)

Install the following components:

Cylinder Head Cover <sup>[6]</sup>

Spark Plug <sup>[5]</sup> (cap)

Radiator and Fan <sup>[4]</sup>

Fuel Tank <sup>[3]</sup>

Bodywork <sup>[2]</sup> (side covers and fuel tank shrouds)

Seat <sup>[1]</sup>

URLs in this post:

[1] Seat: **<https://www.cyclepedia.com/manuals/online/cpp-323/external-components/seat/>**

[2] Bodywork: **<https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>**

[3] Fuel Tank: **<https://www.cyclepedia.com/manuals/online/cpp-323/external-components/fuel-tank/>**

[4] Radiator and Fan: **<https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/radiator/>**

[5] Spark Plug: **<https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/spark-plug/>**

[6] Cylinder Head Cover: **<https://www.cyclepedia.com/manuals/online/cpp-323/engine/cylinder-head-cover/>**

[7] Valve Clearance: **<https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/valve-clearance/>**

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## - Honda CRF300L Service Manual

Cylinder Head

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

### **Suggested Tools and Supplies**

10 mm Socket  
14 mm Socket  
17 mm Socket  
Ratchet  
Torque Wrench  
Feeler Gauge Set  
Straight Edge  
Nitrile Gloves  
Safety Glasses

## **Removal**

Remove or perform the following for access:

Seat <sup>[1]</sup>

Bodywork <sup>[2]</sup> (side covers and fuel tank shrouds)

Fuel Tank <sup>[3]</sup> (raise and support aside or remove for access as desired)

Radiator and Fan <sup>[4]</sup> (remove with the hoses intact and support aside for access)

Spark Plug <sup>[5]</sup>

Cylinder Head Cover <sup>[6]</sup>

Camshafts <sup>[7]</sup>

Bodywork <sup>[2]</sup> (rear cowl/upper fender, rear fender/tag mount assembly)

Exhaust System <sup>[8]</sup> (remove the muffler)

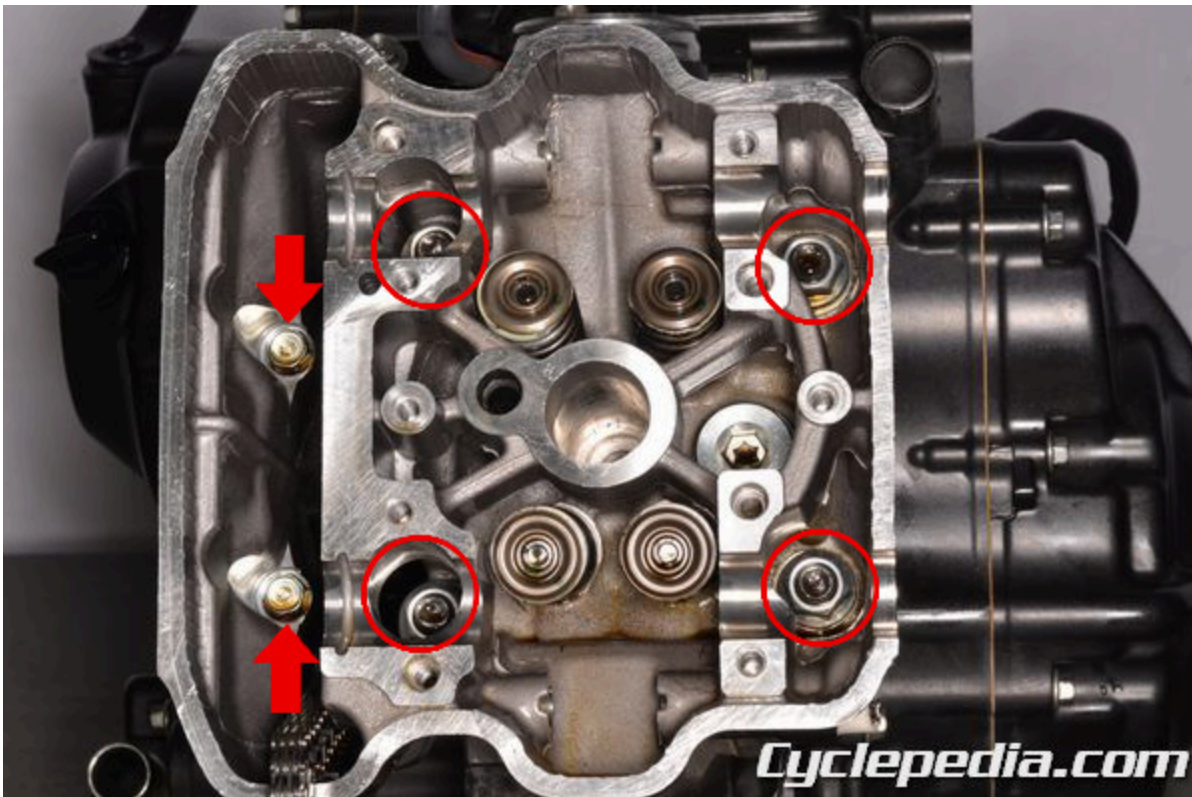
Helmet Holder <sup>[9]</sup>

Bodywork <sup>[2]</sup> (rear lower fender)

Air Box <sup>[10]</sup>

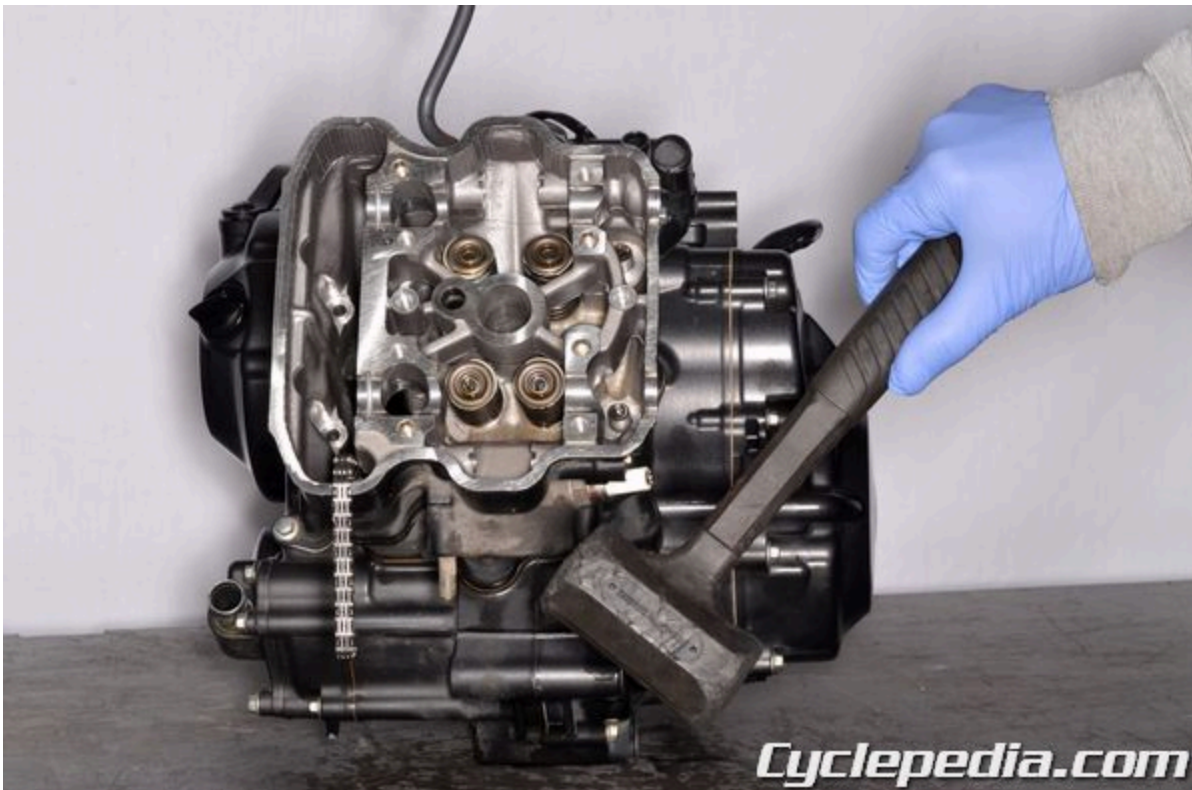
Throttle Body <sup>[11]</sup>

Thermostat <sup>[12]</sup> (disconnect the hose and/or remove, as desired)



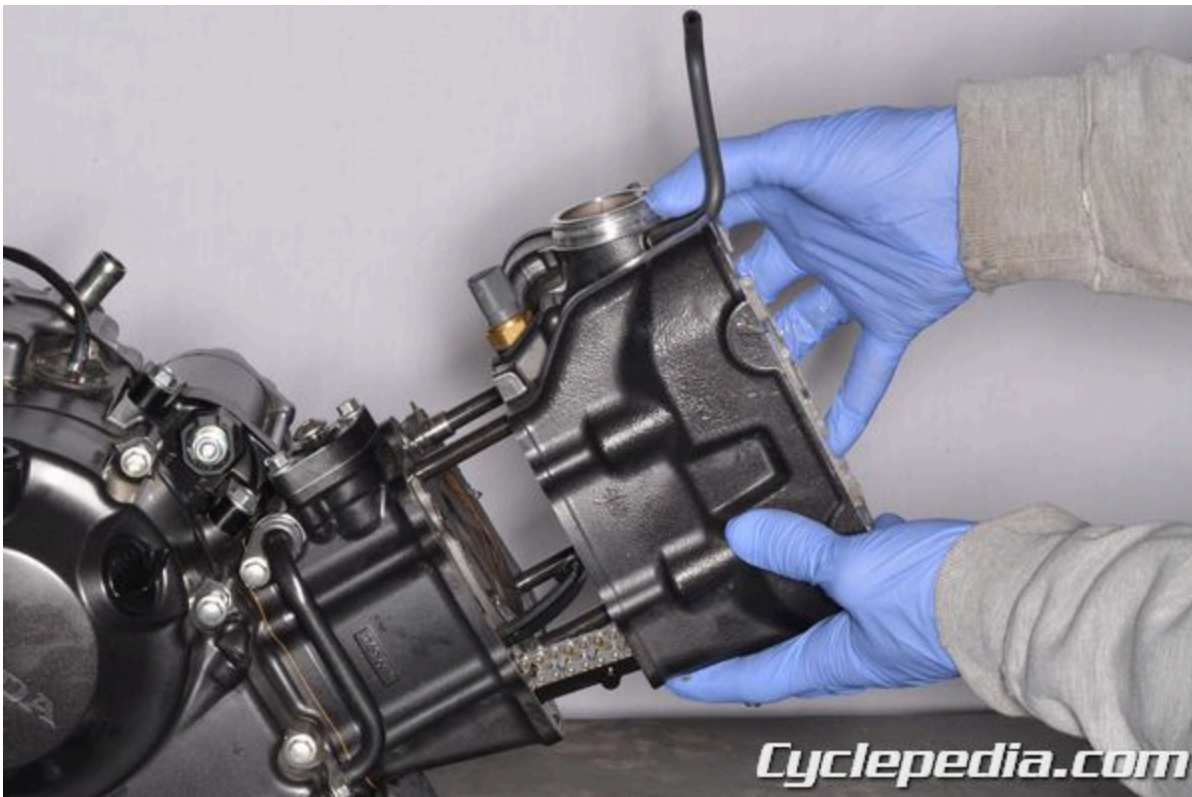
Remove the two small bolts first with a 10 mm socket. Do not drop the fasteners into the bottom end of the engine or down the spark plug hole.

Gradually loosen the cylinder head nuts a little at a time with a 14 mm socket and using a few passes of a crossing pattern. Remove the four cylinder head nuts. Replace the cylinder head nuts with new items on assembly.



If the cylinder head refuses to budge, tap it carefully with a soft-faced mallet to break it free from the gasket.





Support the cam chain to keep it from falling into the crankcases, and remove the cylinder head.



Remove the two dowel pins from the cylinder studs.



Remove the front cam chain guide.



Remove the gasket from the cylinder.

**ECT sensor**

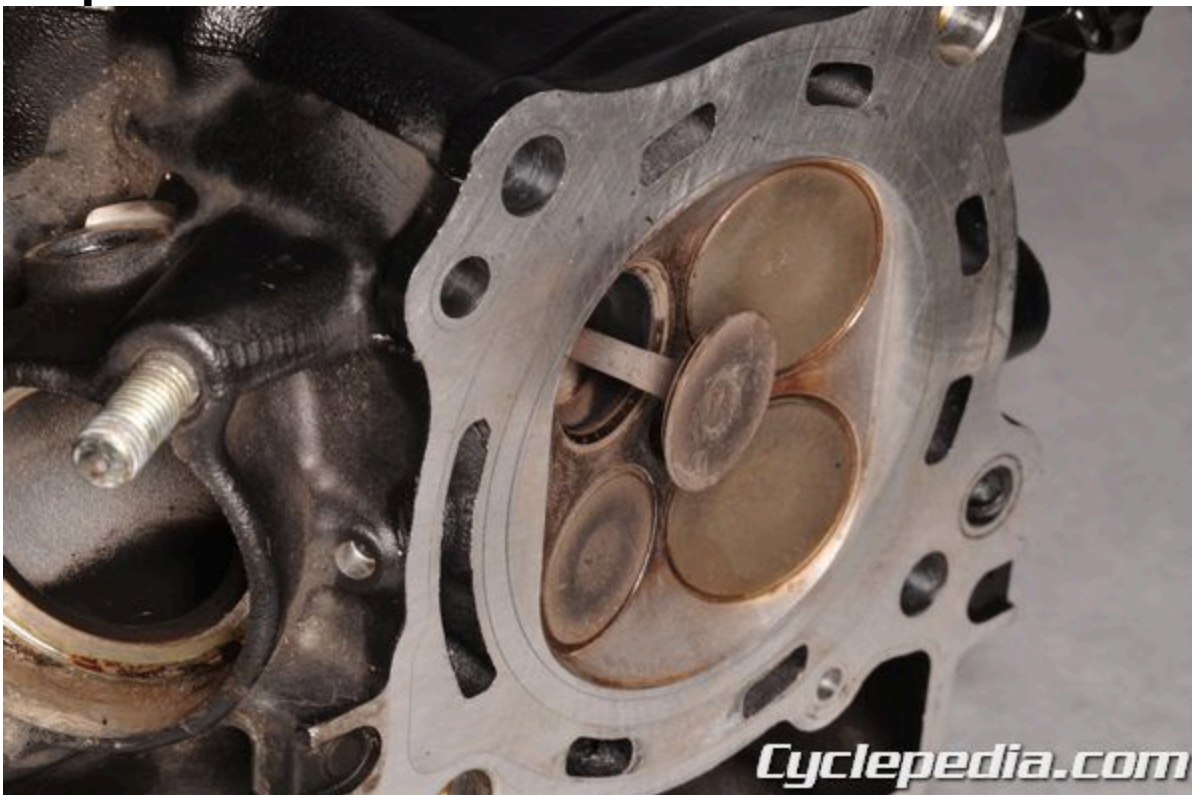




Loosen the ECT sensor with a 17 mm deep well socket. Upon assembly, install the ECT sensor with a new washer and tighten it to specification with a 17 mm deep well socket.

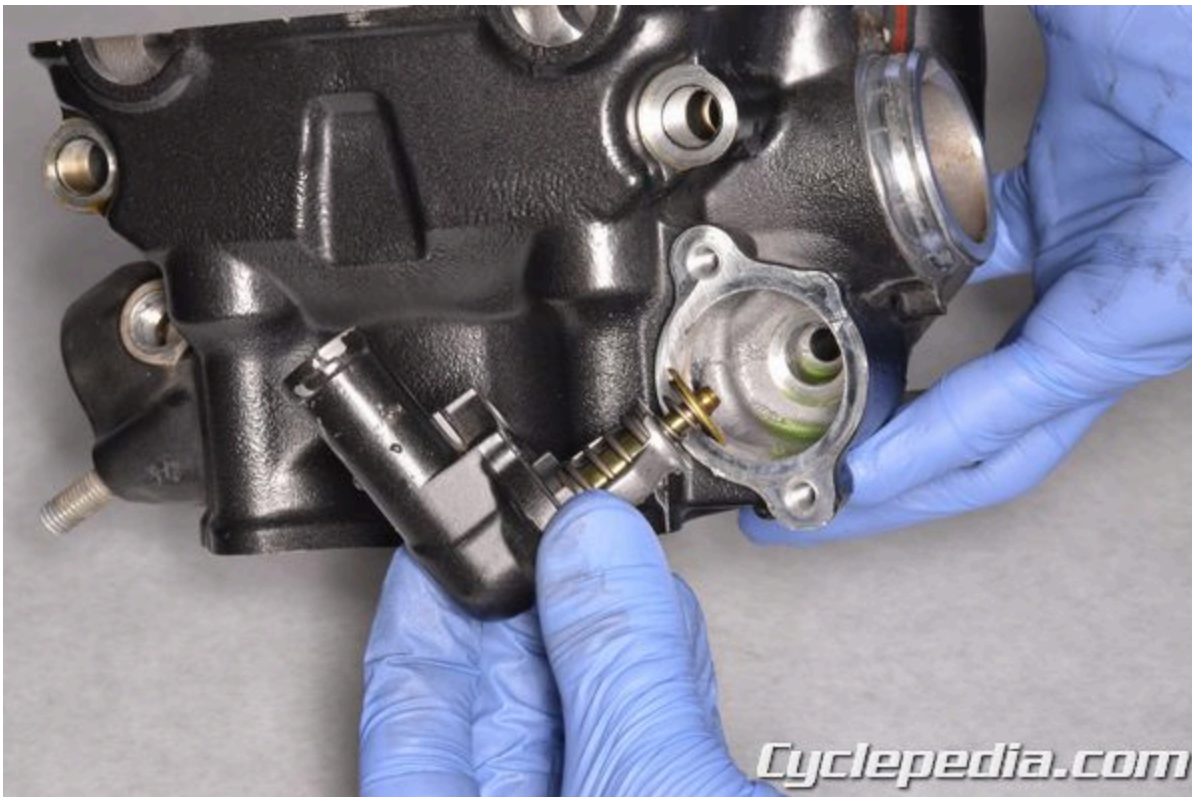
**ECT sensor:** 25 N-m (2.5 kgf-m, 18 ft-lb)

## Inspection



See the [Valves](#) <sup>[13]</sup> topic for information on the valve components.





See the [Thermostat](#) <sup>[12]</sup> topic for information on the thermostat.

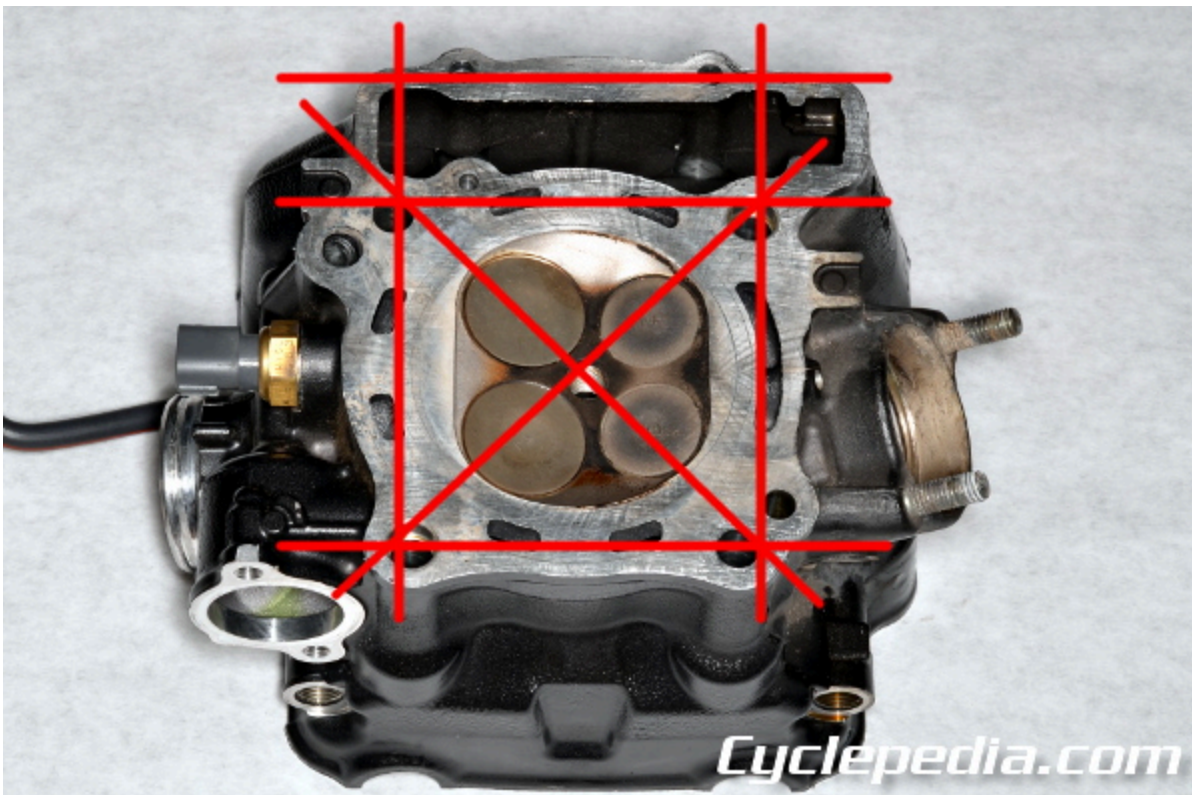


Clean the carbon build up out of the combustion chamber with a stiff bristled plastic brush or rag. Never use a wire brush to clean a combustion chamber.





Place a straight edge across the bottom of the cylinder head and check for warp with a feeler gauge.



Check clearance readings from several places on the bottom of the cylinder head surface to make sure the head isn't warped. If the clearances are outside of the specification the head will need to be resurfaced or replaced.

**Cylinder head warpage limit:** 0.10 mm (0.004 in)

Resurface the cylinder head with 400-600 grit wet sandpaper on a surface plate, using a figure-eight motion. If the cylinder head warpage is still out of specification after resurfacing, replace the cylinder head.

## Installation



Install a new cylinder head gasket.



Install the front cam chain guide.



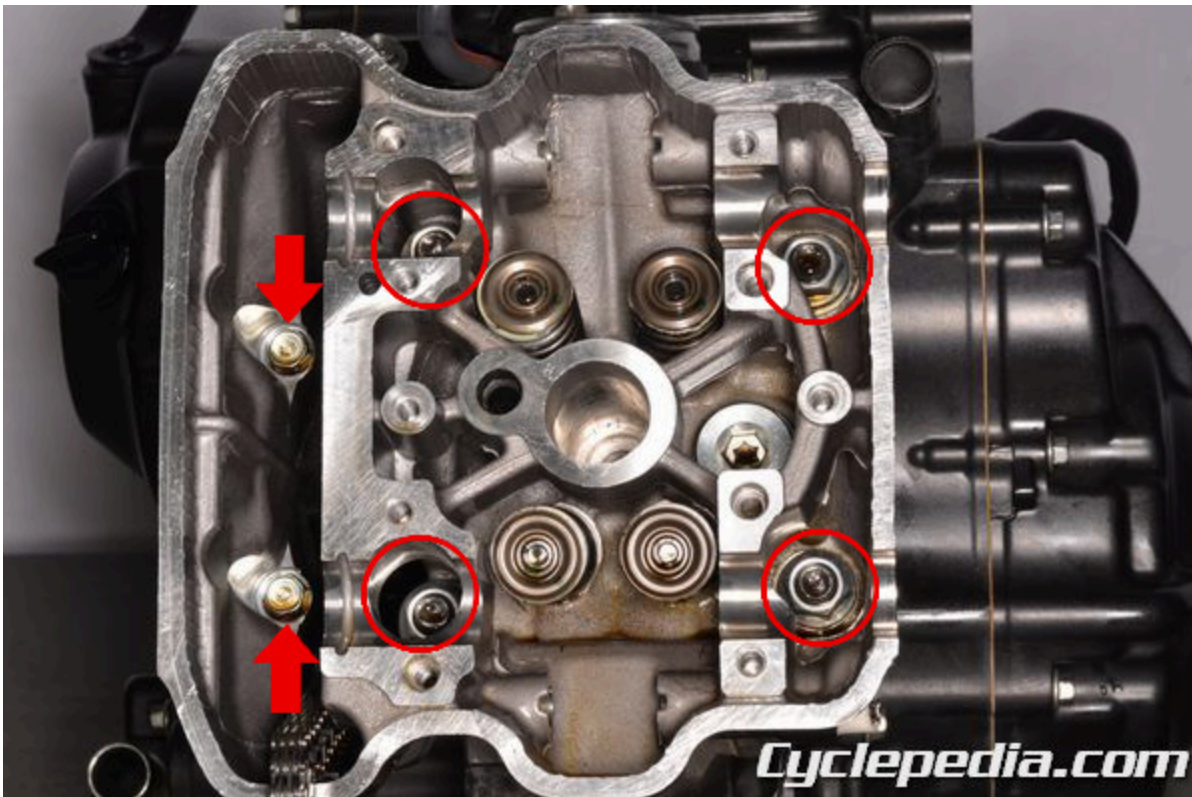
Note: Be sure to seat the bottom of the guide in the groove on the left crankcase and the pins near the top of the guide with the grooves in the cylinder head.



Insert the dowel pins back onto the cylinder studs.



Lower the cylinder head into place, feeding the cam chain through the channel.



Apply fresh engine oil to the threads and seating surfaces of the new cylinder head nuts. Install the new cylinder head nuts with new washers as well.

Tighten the nuts to specification using multiple passes of a crisscross pattern and a 14 mm socket. Install the two small cylinder head bolts after the nuts have been tightened, and tighten the cylinder head bolts securely with a 10 mm socket.

**Cylinder head mounting nut (oil threads):** 45 N-m (4.6 kgf-m, 33 ft-lb)

Install or perform the following:

Thermostat <sup>[12]</sup>

Throttle Body <sup>[11]</sup>

Air Box <sup>[10]</sup>

Bodywork <sup>[2]</sup> (rear lower fender)

Helmet Holder <sup>[9]</sup>

Exhaust System <sup>[8]</sup> (muffler)

Bodywork <sup>[2]</sup> (rear cowl/upper fender, rear fender/tag mount assembly)

Camshafts <sup>[7]</sup>

Cylinder Head Cover <sup>[6]</sup>

Spark Plug <sup>[5]</sup>

Radiator and Fan <sup>[4]</sup>

Fuel Tank <sup>[3]</sup>

Bodywork <sup>[2]</sup> (side covers and fuel tank shrouds)

Seat <sup>[1]</sup>

URLs in this post:

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[2] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>



- [3] Fuel Tank: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/external-components/fuel-tank/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/external-components/fuel-tank/)
- [4] Radiator and Fan: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/radiator/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/radiator/)
- [5] Spark Plug: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/spark-plug/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/spark-plug/)
- [6] Cylinder Head Cover: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/engine/cylinder-head-cover/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/engine/cylinder-head-cover/)
- [7] Camshafts: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/engine/camshaft-and-rocker-arms/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/engine/camshaft-and-rocker-arms/)
- [8] Exhaust System: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/external-components/exhaust-system/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/external-components/exhaust-system/)
- [9] Helmet Holder: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/external-components/helmet-holder/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/external-components/helmet-holder/)
- [10] Air Box: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/airbox/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/airbox/)
- [11] Throttle Body: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/throttle-body/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/throttle-body/)
- [12] Thermostat: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/thermostat/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/thermostat/)
- [13] Valves: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/engine/valves/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/engine/valves/)

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## - Honda CRF300L Service Manual

### Piston and Cylinder

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

8 mm Socket  
Small Flat Head Screwdriver  
Rubber Mallet  
Needle Nose Pliers  
Shop Towel  
Contact Cleaner  
Stiff Bristled Plastic Brush  
Vernier Calipers and Micrometer  
Feeler Gauge  
Nitrile Gloves  
Safety Glasses

### **Disassembly**

Remove the cylinder head for access. See the [Cylinder Head](#) <sup>[1]</sup> topic for more information.



Remove the two water pipe bolts with an 8 mm socket.





Remove the water pipe.



Replace the O-rings with new items on assembly.



Tap the cylinder lightly with a soft-faced mallet to break it loose.



Lift the cylinder off the cases. Support the connecting rod and piston to keep the rod from knocking against the cases. Also, keep the cam chain from falling down into the crankcases.





Remove the two dowel pins from the studs and cylinder base. Remove the base gasket material from the crankcases and base of the cylinder.



Stuff a clean rag into the crankcase opening to keep objects from falling into the crankcases.





Remove the circlip from the piston pin bore and discard. Always use new circlips when installing a piston.



Push the piston pin out of the piston and remove the piston from the connecting rod.



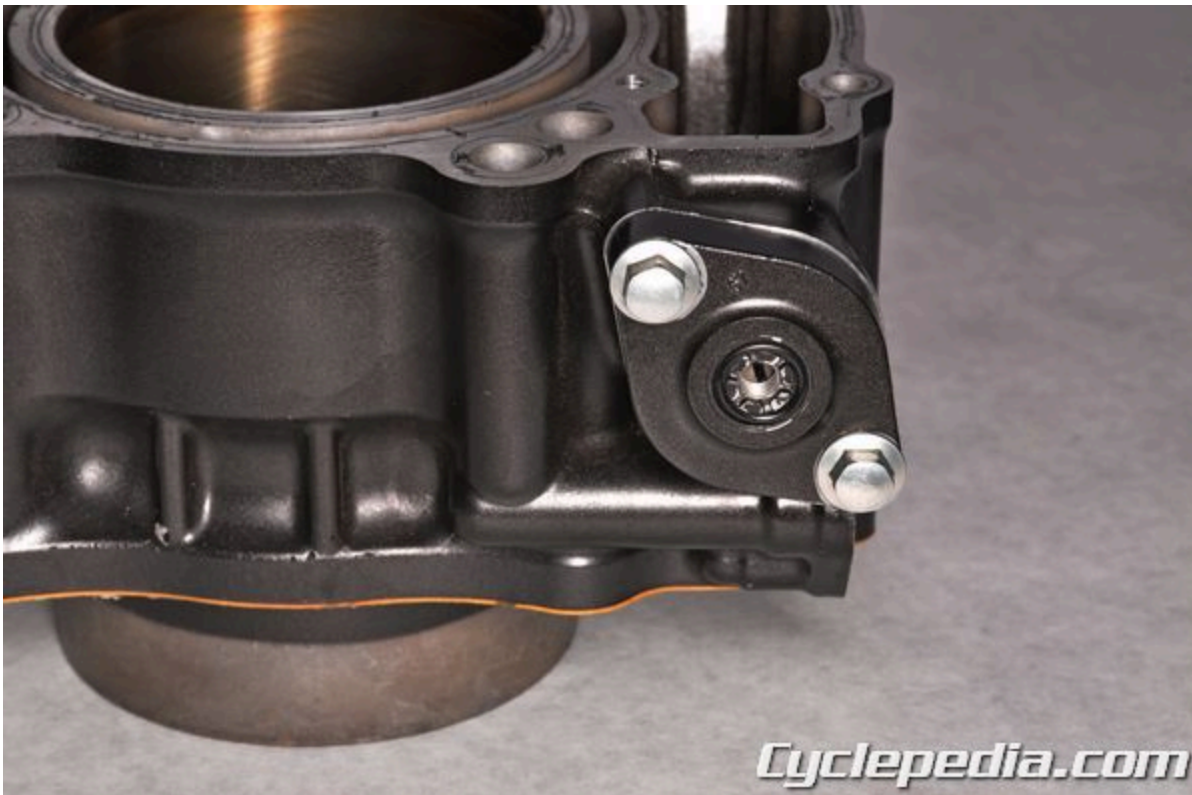


Spread the piston rings apart and remove the rings from the piston.



Clean the carbon build up off of the piston with a stiff bristled plastic brush or rag. Commercial carburetor cleaner will help cut the worst deposits. Never use a wire brush to clean a piston. Also clean out the ring grooves. You can use an old ring to scrape out any carbon build up in the grooves. Do not scratch the piston if you plan to re-use it!

## Cam Chain Tensioner



Remove the cam chain tensioner mounting bolts with an 8 mm socket.



Remove the cam chain tensioner from the cylinder.





Check the function of the cam chain tensioner by pressing in the lifter piece with a finger. The lifter should not go all the way back into the cam chain tensioner.



While compressing the lifter piece into the tensioner insert a small flat blade screw driver into the back of the tensioner or the tensioner lifter stopper tool as desired. Turn the screw driver **clockwise**. The lifter piece should now retract into the tensioner body. When the screw driver or lifter tool is released the lifter piece should spring back to full length.

**Special Tool – Cam Chain Tensioner Lifter Stopper:** 070MG-0010100



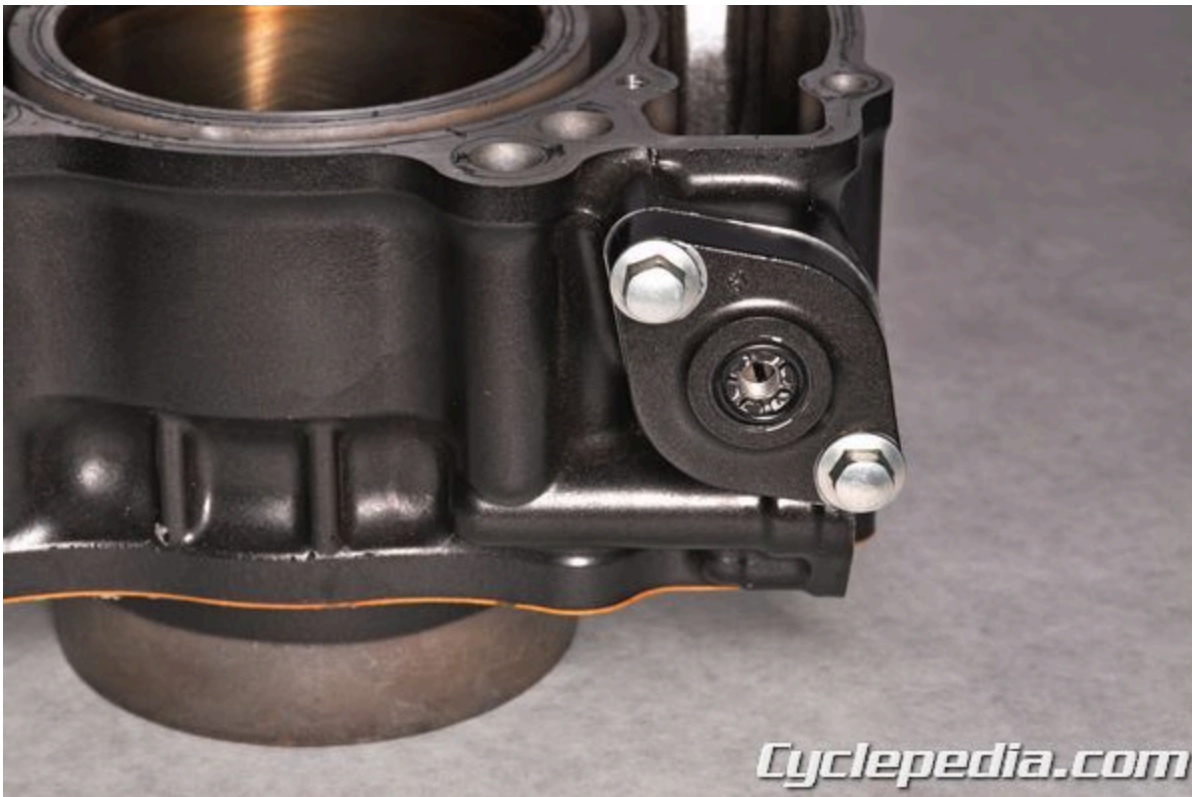
Install the tensioner with a new gasket.



If the cam chain is installed, install the tensioner in a retracted position. See the installation instructions in the [Camshaft](#) <sup>[2]</sup> topic for more information.

Note: Hold the tensioner lifter by pushing the tool while aligning the tabs of the tool with the grooves of the tensioner lifter.





Install the cam chain tensioner mounting bolts with an 8 mm socket.

## Inspection



Measure the piston pin diameter and check that it is in specification.

**Piston pin outer diameter:** 16.994 – 17.000 mm (0.6691 – 0.6693 in) standard, 16.980 mm (0.669 in) limit



Measure the piston pin bore diameter and check that it is in specification.

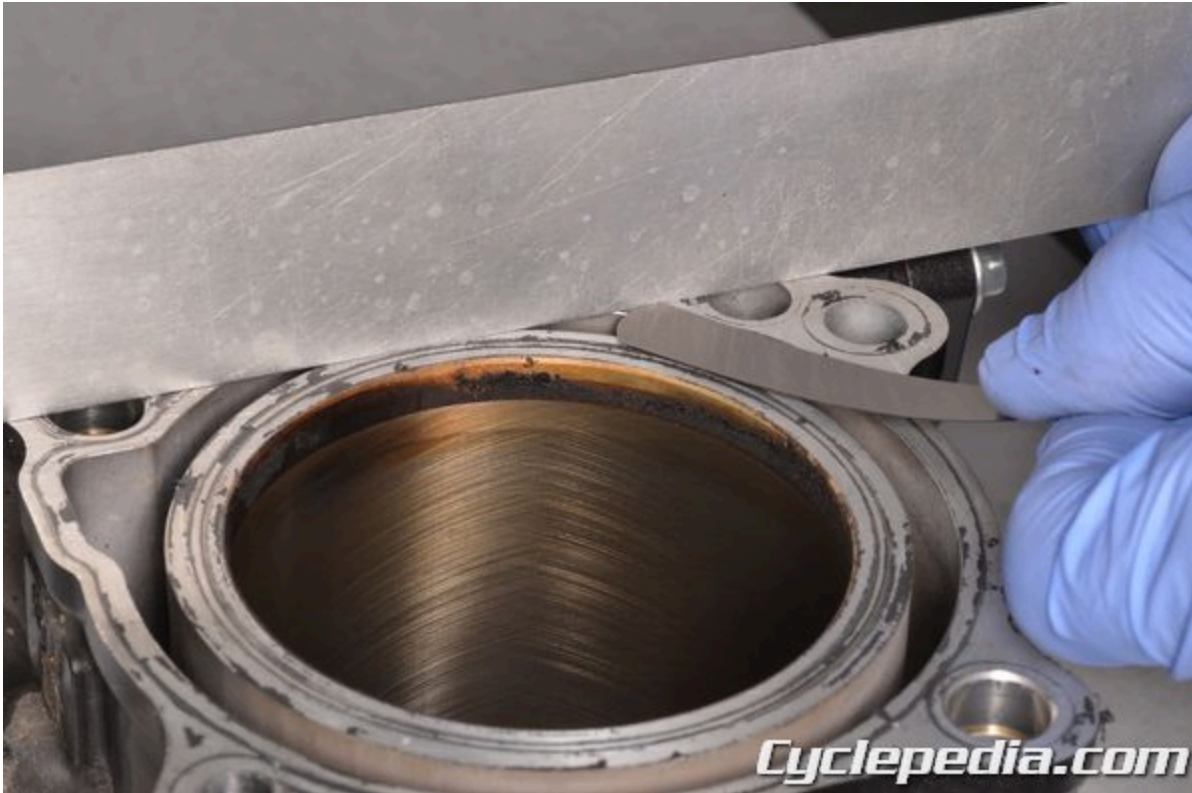
**Piston pin hole inner diameter:** 17.002 – 17.008 mm (0.6694 – 0.6696 in) standard, 17.020 mm (0.670 in) limit



Measure the inside diameter of the small end of the connecting rod with vernier calipers. If the measurement is over specification replace the connecting rod and crankshaft.



**Connecting rod small end inner diameter:** 17.016 – 17.034 mm (0.6699 – 0.6706 in) standard, 17.044 mm (0.6710 in) limit

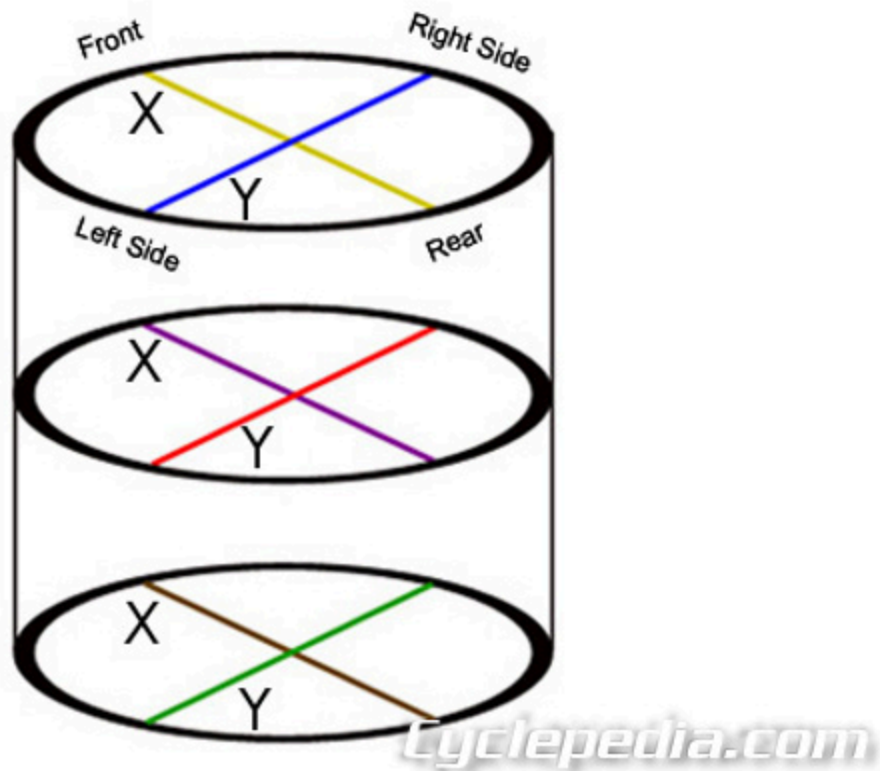


Measure the cylinder warp with a straight edge and a feeler gauge. Replace the cylinder if it is out of specification.

**Cylinder Warp Limit:** 0.010 mm (0.0004 in)

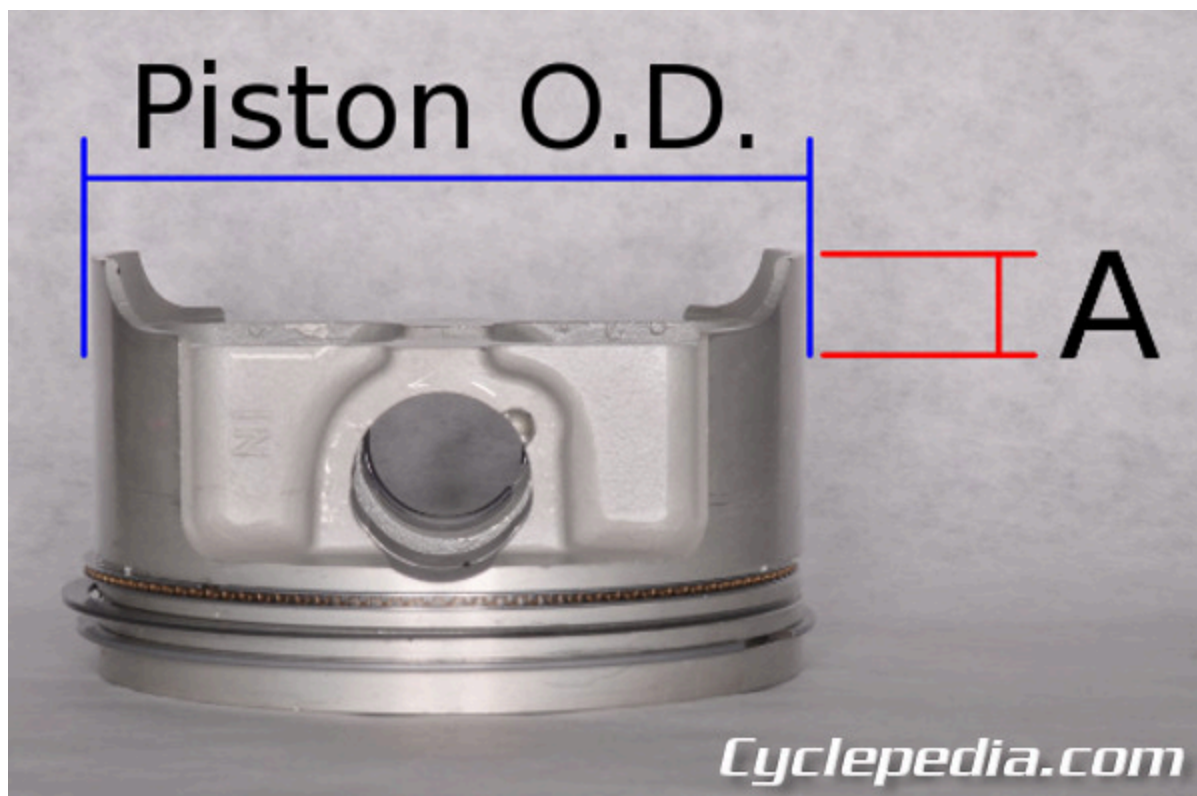


Inspect the cylinder for wear and damage. Measure the cylinder bores using a dial bore gauge.



Measure and record the diameter of the cylinder front to back (X) and side to side (Y) at three different height levels. Take measurements as shown, in parallel to and at right angles from the crankshaft. Compare the maximum measurement with specification. If any of the cylinder measurements are not within specification, either the cylinders will have to be bored oversize or replaced, along with the pistons and rings.

**Cylinder inner diameter:** 76.000 – 76.010 mm (2.9921 – 2.9925 in) standard, 76.1 mm (3.000 in) limit





Measure and record the diameter of the piston from 11 mm above the bottom of the skirt at a 90° angle to the piston pin. Measure the piston with vernier calipers or a micrometer. Replace the piston if this measurement is below specification. Check the piston for wear and extreme discoloration.

**Piston O.D. at 11 mm (0.4 in) from bottom:** 75.960 – 75.980 mm (2.9905 – 2.9913 in) standard, 75.88 mm (2.987 in) limit



Insert the top ring into the cylinder. Push the top ring in the cylinder about an inch. Use the piston to push in the ring to keep it square with the cylinder. Measure the ring gap with a feeler gauge. Repeat this procedure with the second and oil ring side rails.

#### **Piston Ring End Gap**

**Top Ring:** 0.28 – 0.38 mm (0.011 – 0.015 in) standard, 0.48 mm (0.019 in) limit

**Second Ring:** 0.40 – 0.55 mm (0.016 – 0.022 in) standard, 0.65 mm (0.026 in) limit

**Oil (side rail):** 0.20 – 0.70 mm (0.008 – 0.028 in) standard, 0.90 mm (0.040 in) limit



Temporarily install the top piston ring and check the ring-to-groove clearance with a feeler gauge. Repeat this procedure with the second ring.

**Piston ring-to-ring groove clearance**

**Top:** 0.040 – 0.080 mm (0.0016 – 0.0031 in)

**Second:** 0.015 – 0.050 mm (0.0006 – 0.0020 in)

## Stud Replacement





If you need to remove a stud, thread two nuts and lock them against each other on the stud. Turn the bottom nut out to remove the stud.

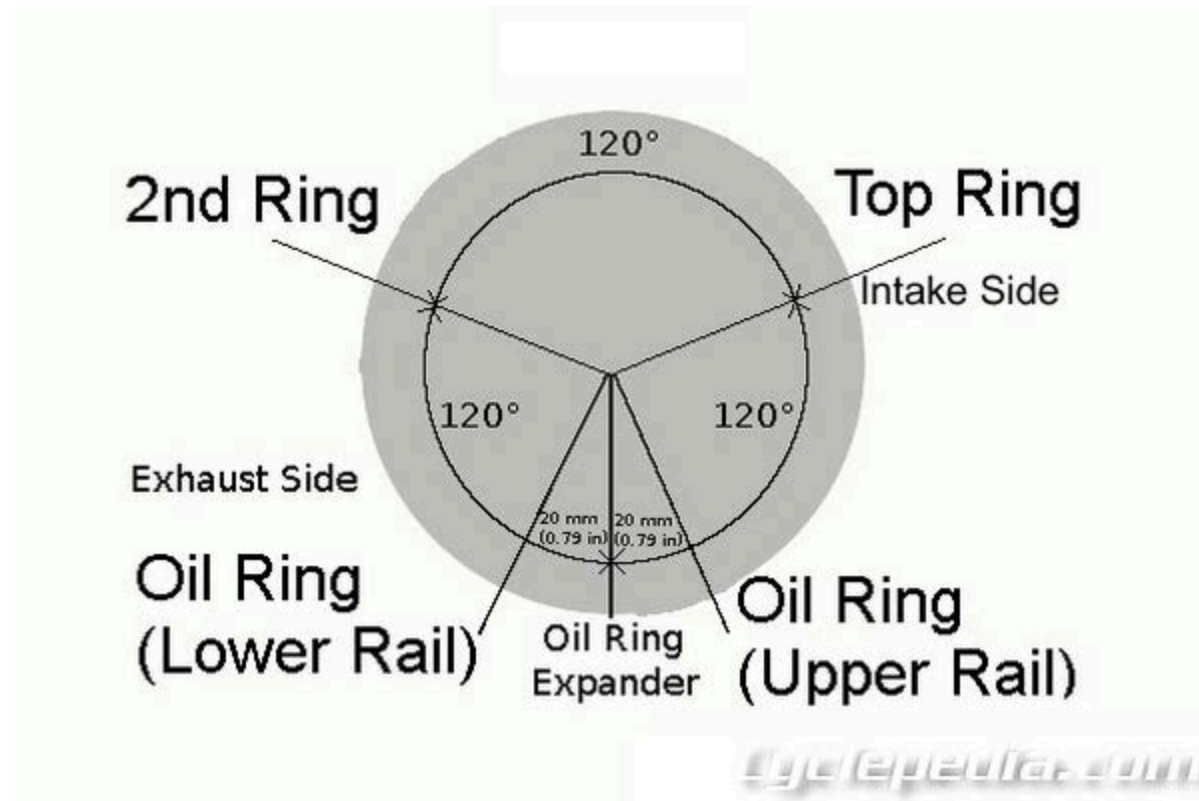


To install a stud, thread two nuts against each other on the top of the stud. Turn in the top nut until the stud is at the proper height above cylinder base. Measure the stud height from the top of the stud to the cylinder base. The studs should be **141.0 – 143.0 mm (5.56 – 5.64 in)** above the cylinder base.

## Assembly



Lubricate the piston pin and the inside of the small end of the connecting rod with a mixture of molybdenum grease and fresh engine oil.



Install the all the rings in their original locations with their markings facing up. Rotate the gap ends as shown. Be careful not to break any rings.

Lubricate the rings and ring grooves with fresh engine oil.



The top ring is marked with an R.





The second ring is marked RN.



1st Ring



2nd Ring

Ring Cross-section

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Note the ring cross-sections if the markings are not legible.



Apply fresh engine oil to the piston pin bore. Install the piston with the IN mark facing the rear of the engine.



Insert the piston pin into the piston and through the connecting rod.

Note: Place a clean shop towel under and around the base of the piston to prevent any parts or debris falling into the crankcase.





Install new piston pin clips securely into their grooves. Turn the gap in the clips away from the access gap.



Install the dowel pins. Put a new base gasket in place.



Coat the inside of the cylinder, piston rings, and piston in fresh engine oil. Lower the cylinder into place and guide the piston into the cylinder while you are compressing the rings with your fingers. Be careful to not damage the rings during this step. Bring the cam chain through the opening.



Install new O-rings with the water pipe.





Install the water pipe.



Install the two water pipe bolts and tighten them securely with an 8 mm socket.

Install the cylinder head. See the [Cylinder Head](https://www.cyclepedia.com/manuals/online/cpp-323/engine/cylinder-head/) <sup>[1]</sup> topic for more information. URLs in this post:

[1] Cylinder Head: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/cylinder-head/>

[2] Camshaft: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/camshaft-and-rocker-arms/>

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## - Honda CRF300L Service Manual

### Valves

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

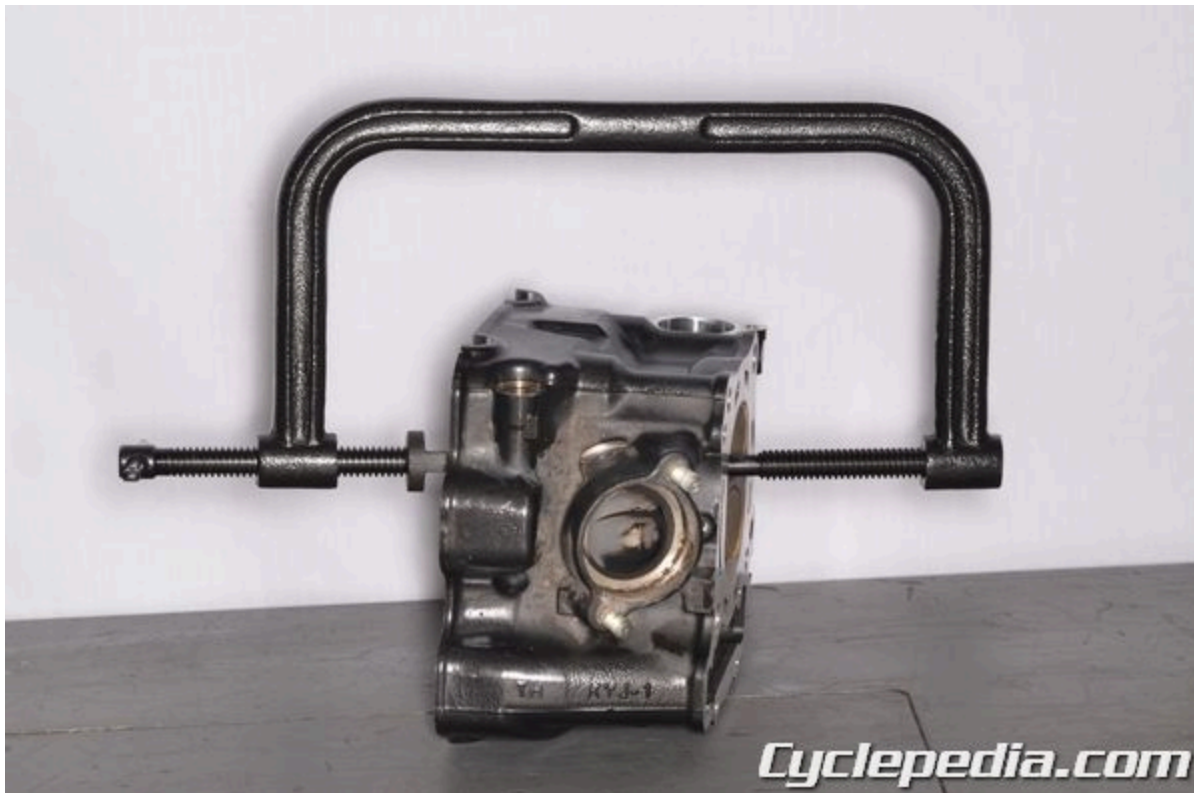
Valve Spring Compressor  
Magnetic Pickup Tool  
Needle Nose Pliers or Tweezers  
Micrometer or Vernier Calipers  
Small Bore Gauge  
Ruler  
Hammer  
Rubber Mallet  
Nitrile Gloves  
Safety Glasses

### **Removal**

Remove the cylinder head. See the [Cylinder Head](#) <sup>[1]</sup> topic for more information.

Note: Check valve sealing before removing valves. Pour a clean solvent into the intake port and then the exhaust port to check for any leakage. If there is leakage, inspect the valve face, valve seat and valve seat width. Service as needed.

Note the location of all of the valve parts so that they can be returned to their original positions. Remove all of the valves in the same manner.

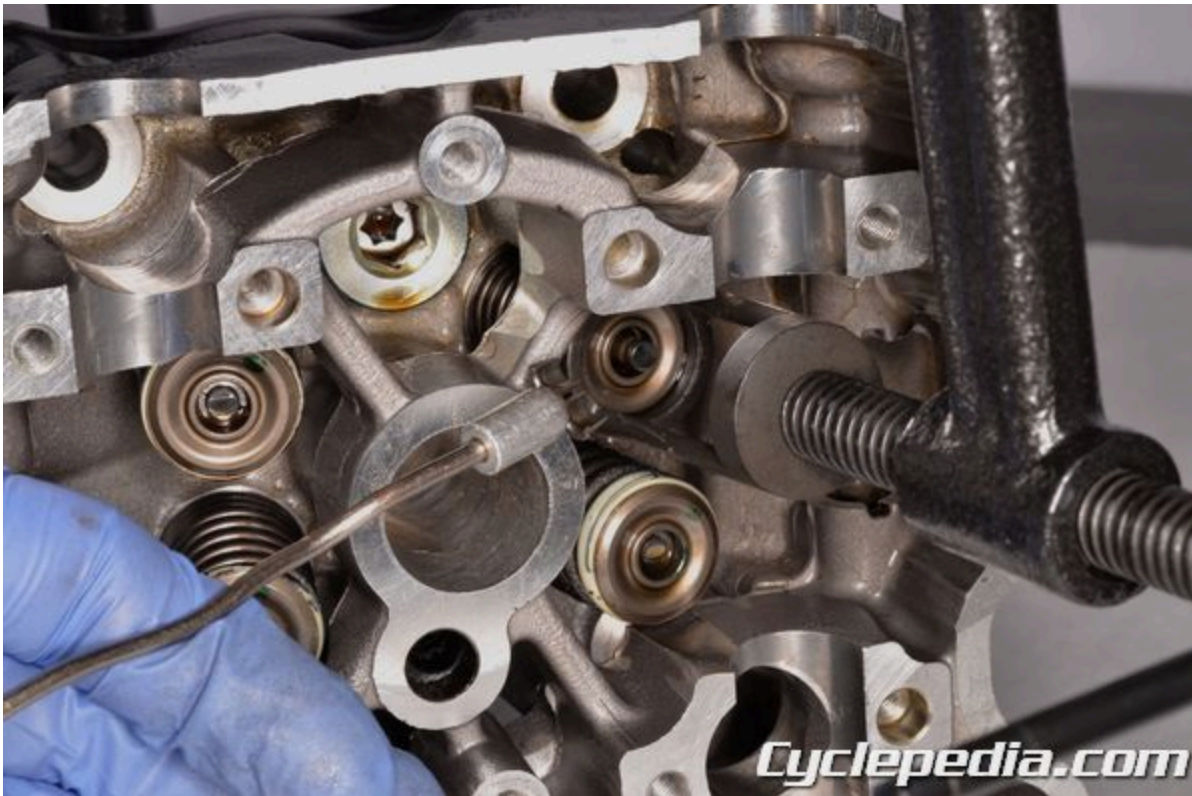


Attach a valve spring compressor and compress the valve spring. Compress the valve springs only enough to remove the split keepers.

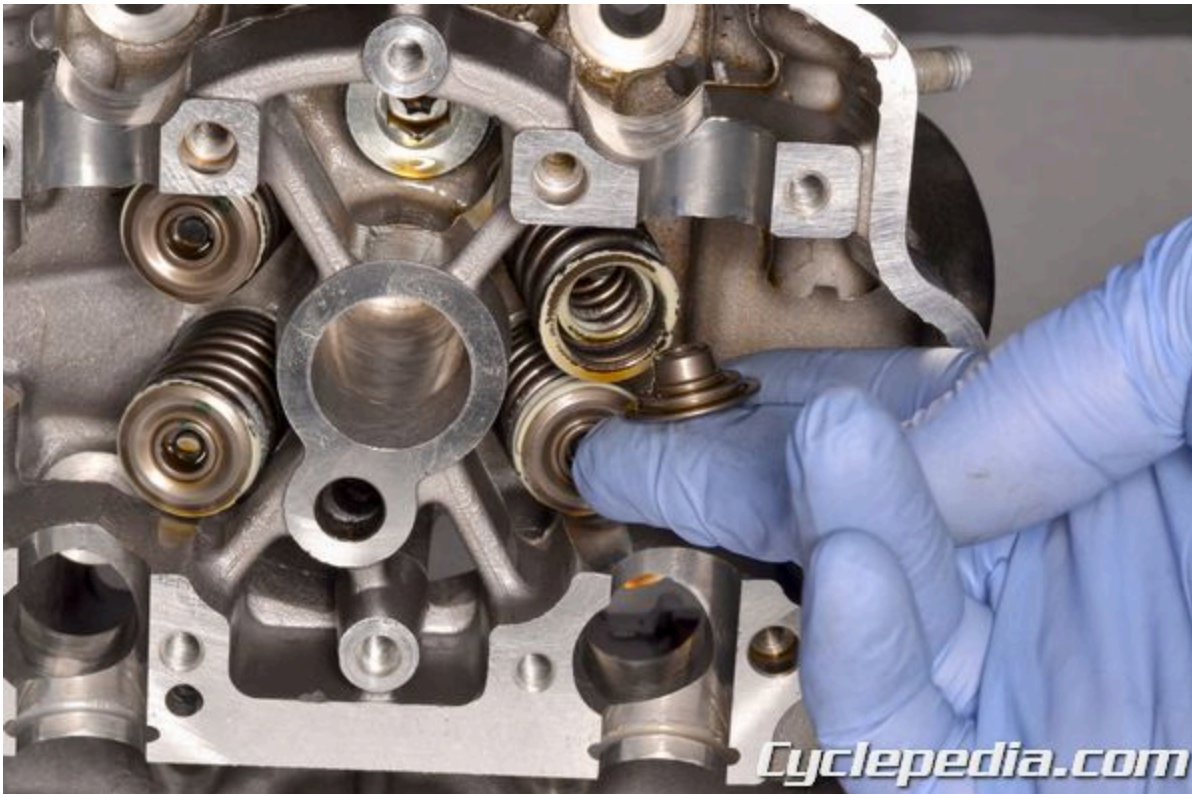
#### **Special Tools –**

**Valve Spring Compressor:** 07757-0010000

**Valve Spring Compressor Attachment: 07959-KM30101**



Use a magnet to pick the keepers out of the spring retainer. Remove the valve spring compressor once the keepers are out.



Remove the spring retainer.





Remove the valve springs.



Remove the valve from the combustion chamber.





Remove the valve seal from the valve guide.



Remove the spring seat.

## Inspection

Examine the valve springs carefully. Use the following specifications when measuring the various tolerances:





Measure the free length of the valve springs with vernier calipers. Replace the valve springs if they are below the service limit.

**Valve spring free length**

**Inner:** 35.24 mm(1.387 in) standard, 34.54 mm (1.360 in) limit

**Outer:** 39.85 mm (1.569 in) standard, 39.05 mm (1.537 in) limit



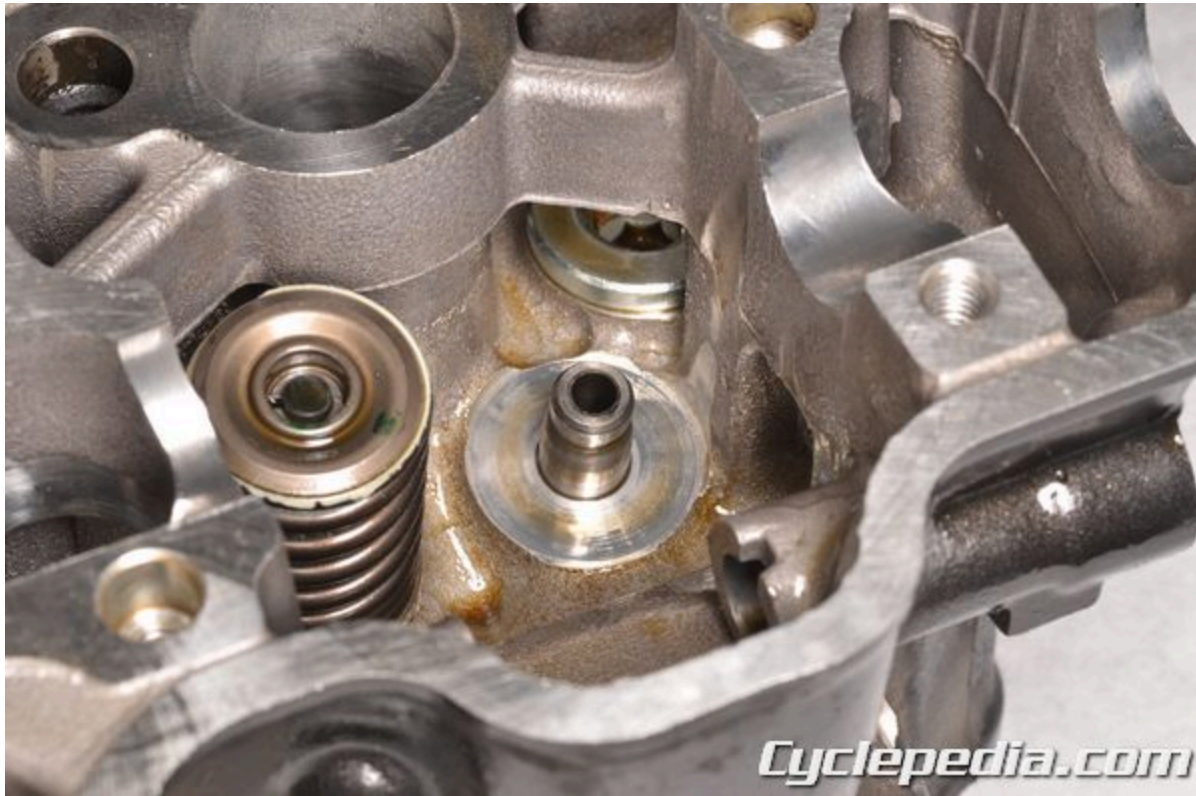
Inspect the valve for damage. Measure the valve stem diameter with a micrometer or vernier calipers and compare the measurements with the specifications. Replace any valves that do not meet the service

limit.

### **Valve stem outer diameter**

**Intake:** 4.475 – 4.490 mm (0.1732 – 0.1768 in) standard, 4.465 mm (0.1758 in) limit

**Exhaust:** 4.465 – 4.480 mm (0.1758 – 0.1764 in) standard, 4.455 mm (0.1754 in) limit



Ream the valve guide prior to measuring the inside diameter. Measure the inside diameter of the valve guides with a small bore gauge.

#### **NOTE:**

Use cutting oil on the reamer during this operation.

Take care not to tilt or lean the reamer in the guide while reaming. Otherwise, the valves may be installed slanted, causing oil leakage from the stem seal and improper valve seat contact. This may prevent valve seat refacing.

Insert the reamer from the combustion chamber side of the head and always rotate the reamer clockwise.

**Special Tool – Valve guide reamer, 4.5 mm:** 07HMH-ML00101

**Valve guide inner diameter:** 4.500 – 4.512 mm (0.1772 – 0.1776 in) standard, 4.540 mm (0.1788 in) limit

If the valve guides are worn past the specification, they should be replaced. See the [Valve Guide Replacement](#) <sup>[2]</sup> topic for more information.





Inspect the valve seat for an uneven seal and pitting. The valve seat should be resurfaced if it is damaged or uneven. See the [Valve Lapping](#) <sup>[3]</sup> topic for more information.

## Installation

Clean out the cylinder head oil passages with solvent and compressed air.

NOTE: Always wear safety glasses when using compressed air and never point it directly at yourself or anyone else.





Install the spring seat.



Lubricate the new valve stem seal with fresh engine oil and push it straight onto the guide.

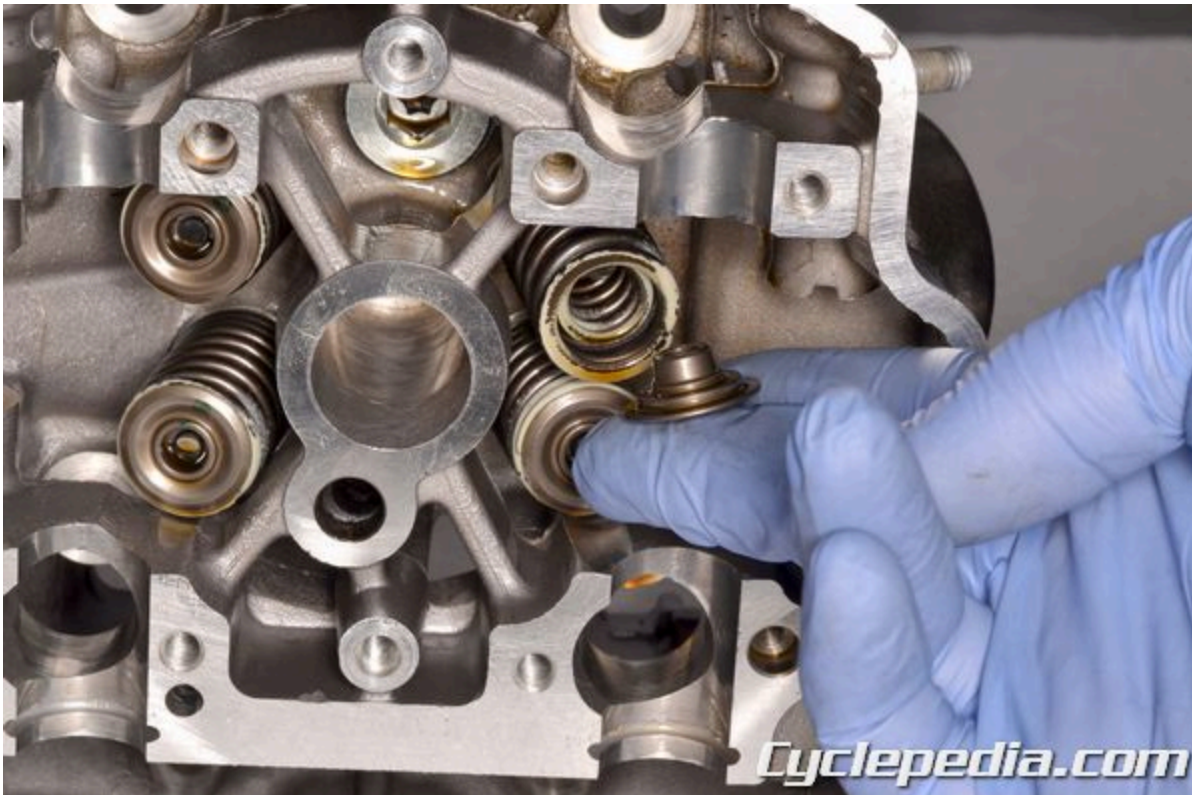


Lubricate the valve stem with moly oil and insert the valve into the cylinder head. Turn the valve slowly as it is inserted. If you are installing a new valve you must have first reamed the valve guide. Make sure the valve will move smoothly in the valve guide without wobble.



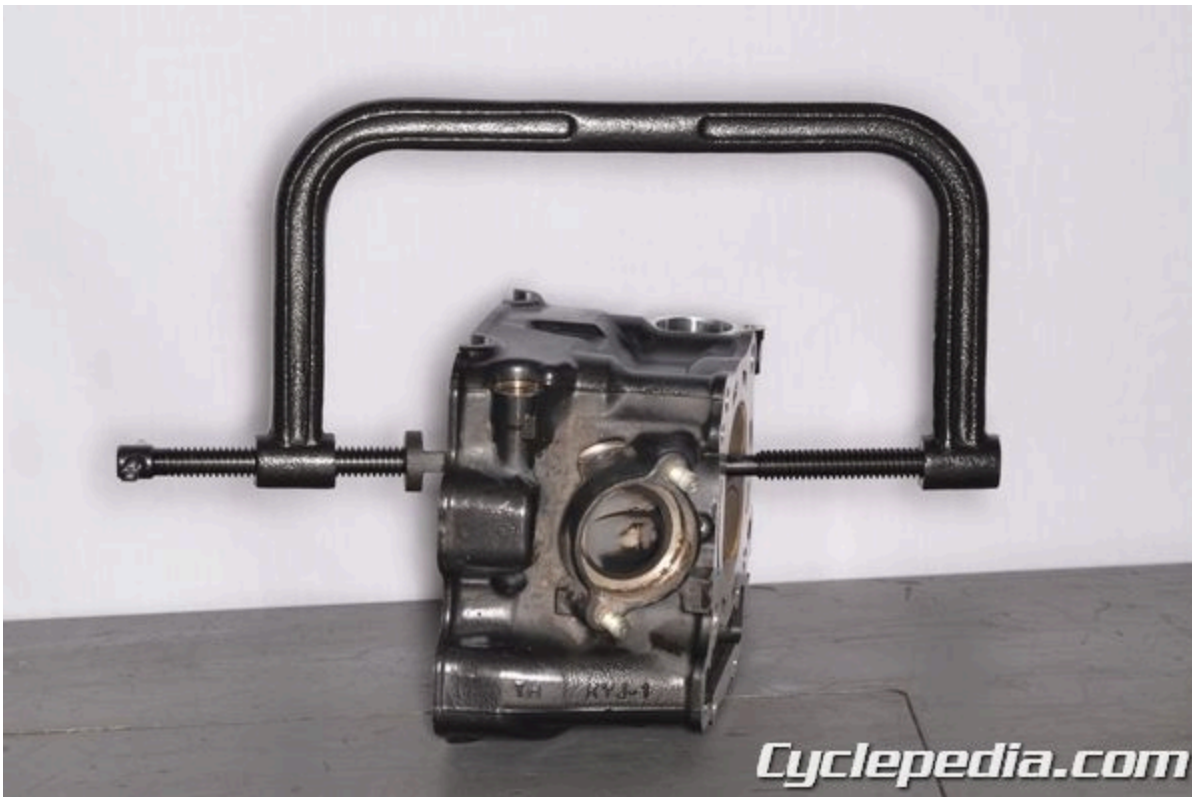


Install the valve springs with the tightly coiled end facing down. Place the spring retainer on top of the springs.



Install the spring retainer.



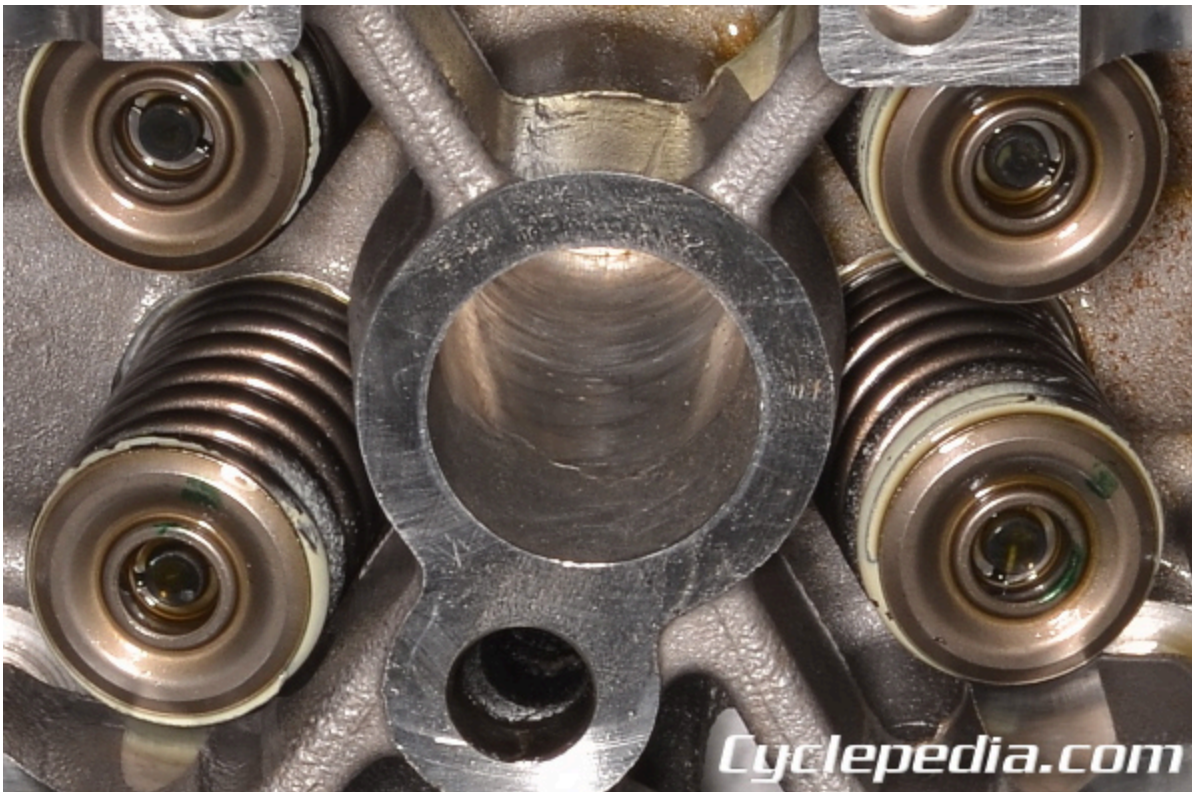


Push down the valve springs with a valve spring compressor. Compress the valve springs only enough to install the split keepers.

**Special Tools –**

**Valve Spring Compressor:** 07757-0010000

**Valve Spring Compressor Attachment:** 07959-KM30101



Apply grease to the inside of the split keepers. Apply a dab of grease to the end of a flat blade screwdriver. Set the keeper in the grease on the screwdriver and insert it onto the valve stem. Slowly



back off the spring compressor and make sure the split keepers hold. When the keepers are in place, remove the valve spring compressor.

Set the head up so that the valves have room to extend beneath. Give the valve a tap with a rubber mallet. Use a shaft to contact the top of the valve stem directly. If the keepers give way put them back in and make sure they are fully seated. Test them one more time to make sure they are properly installed.

To install the cylinder head see the [Cylinder Head](#) <sup>[1]</sup> topic.  
URLs in this post:

[1] Cylinder Head: **<https://www.cyclepedia.com/manuals/online/cpp-323/engine/cylinder-head/>**

[2] Valve Guide Replacement: **<https://www.cyclepedia.com/manuals/online/cpp-323/engine/valve-guide-replacement/>**

[3] Valve Lapping: **<https://www.cyclepedia.com/manuals/online/cpp-323/engine/valve-lapping/>**

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## - Honda CRF300L Service Manual

### Valve Lapping

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

**Note:** We recommend taking your head to a machine shop if your valve seats need work.

#### **Suggested Tools and Supplies**

Valve Lapper

Valve Seat Cutter Set

Prussian Blue

Nitrile Gloves

Safety Glasses



Inspect the valve seat for an uneven seal and pitting. The valve seat should be resurfaced if it is damaged or uneven.



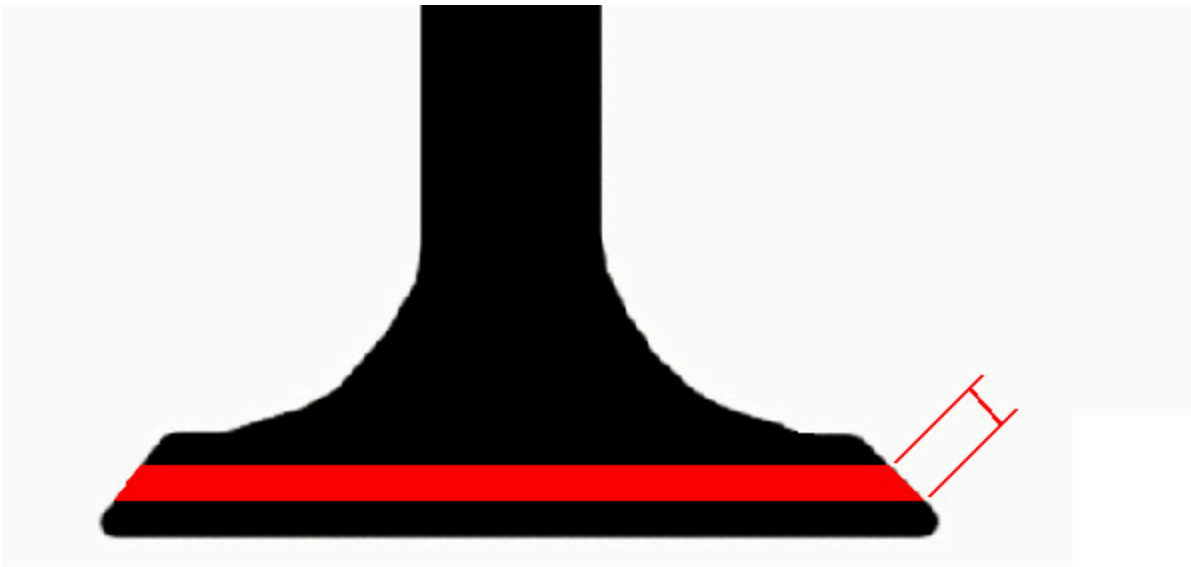


Coat the valve face with a thin layer of Prussian blue and install the valve into the guide.



Using a valve lapping tool, spin the valve in a back and forth circular motion while applying downward pressure onto the valve.

Pull the valve up and look for a complete impression of the Prussian blue all the way around valve seat. If there is a break in the marking on the seat, you will need to re-cut the valve seat.



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Measure the width of the valve seating surface. If the measurements are out of specification or inconsistent around the circumference the valve seat must be repaired with valve cutting tools.

**Valve Seat Width (IN/EX):** 0.90 – 1.10 mm (0.035 – 0.043 in) standard, 1.50 mm (0.059 in) limit



After cutting, lap the valve seats with lapping compound. Use light pressure, and do not allow the lapping compound to get into the valve guides. When you are finished thoroughly clean the lapping compound off of the cylinder head.



Inspect the seat contact after lapping.

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## - Honda CRF300L Service Manual

### Valve Guide Replacement

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

Valve Guide Reamer  
Valve Guide Remover  
Valve Guide Installer  
Ruler or Depth/Height Gauge  
Nitrile Gloves  
Safety Glasses

**If you need to replace your valve guides we recommend taking your cylinder head to a machine shop that specializes in motorcycle cylinder head work.**

If the valve guides are worn past the specification, they should be replaced. See the [Valve Guide](#) <sup>[1]</sup>topic in our Cyclepedia General Service Manual for more information.

NOTE: Refinish the valve seats whenever the valve guides are replaced to prevent uneven seating.

Chill new valve guides in a freezer section of refrigerator for about an hour.



Heat the cylinder head to 130 – 140°C (266 – 284°F) with a hot plate or oven. Do not use a torch to heat the cylinder head; Do not heat the cylinder head beyond 150°C (302°F). Excessive heat or heating the head the wrong way may cause warping or damage. Use temperature indicator sticks, available from welding supply stores, to be sure the cylinder head is heated to the proper temperature. To avoid burns, wear insulated gloves when handling the heated cylinder head.





Support the cylinder head and drive out the valve guides from the combustion chamber side of the cylinder head.

**Special Tool – Valve guide driver, 4.3 mm: 07HMD-ML00101**



While the cylinder head is still heated, take new valve guides from the freezer.





Mark the depth of the valve guide using a marker. Use the valve guide driver to correct the depth.

**Specified Height:** 13.8 – 14.0 mm (0.54 – 0.55 in)

**Special Tool – Valve guide driver, 4.3 mm:** 07HMD-ML00101



Let the cylinder head cool to room temperature. Ream new valve guides.

NOTE:



Use cutting oil on the reamer during this operation.

Take care not to tilt or lean the reamer in the guide while reaming. Otherwise, the valves may be installed slanted, causing oil leakage from the stem seal and improper valve seat contact. This may prevent valve seat refacing.

Insert the reamer from the combustion chamber side of the head and always rotate the reamer clockwise. Clean the cylinder head thoroughly to remove any metal particles after reaming and reface the valve seat. See the Valve Lapping <sup>[2]</sup> topic for more information.

URLs in this post:

[1] Valve Guide : **<https://www.cyclepedia.com/manuals/online/free/engine/valve-guide-replacement/>**

[2] Valve Lapping: **<https://www.cyclepedia.com/manuals/online/cpp-323/engine/valve-lapping/>**

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## - Honda CRF300L Service Manual

### Clutch Removal

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### Suggested Tools and Supplies

8 mm Socket  
10 mm Socket  
24 mm Socket  
Ratchet  
Ruler  
Feeler Gauge Set  
Sliding Caliper  
Nitrile Gloves  
Safety Glasses

### Right Crankcase Cover Removal

Remove or perform the following for access:

Engine Oil <sup>[1]</sup> (drain)

Coolant <sup>[2]</sup> (drain)

Bodywork <sup>[3]</sup> (frame guard)

Rear Brake Pedal <sup>[4]</sup>

Gearshift <sup>[5]</sup> (pedal)

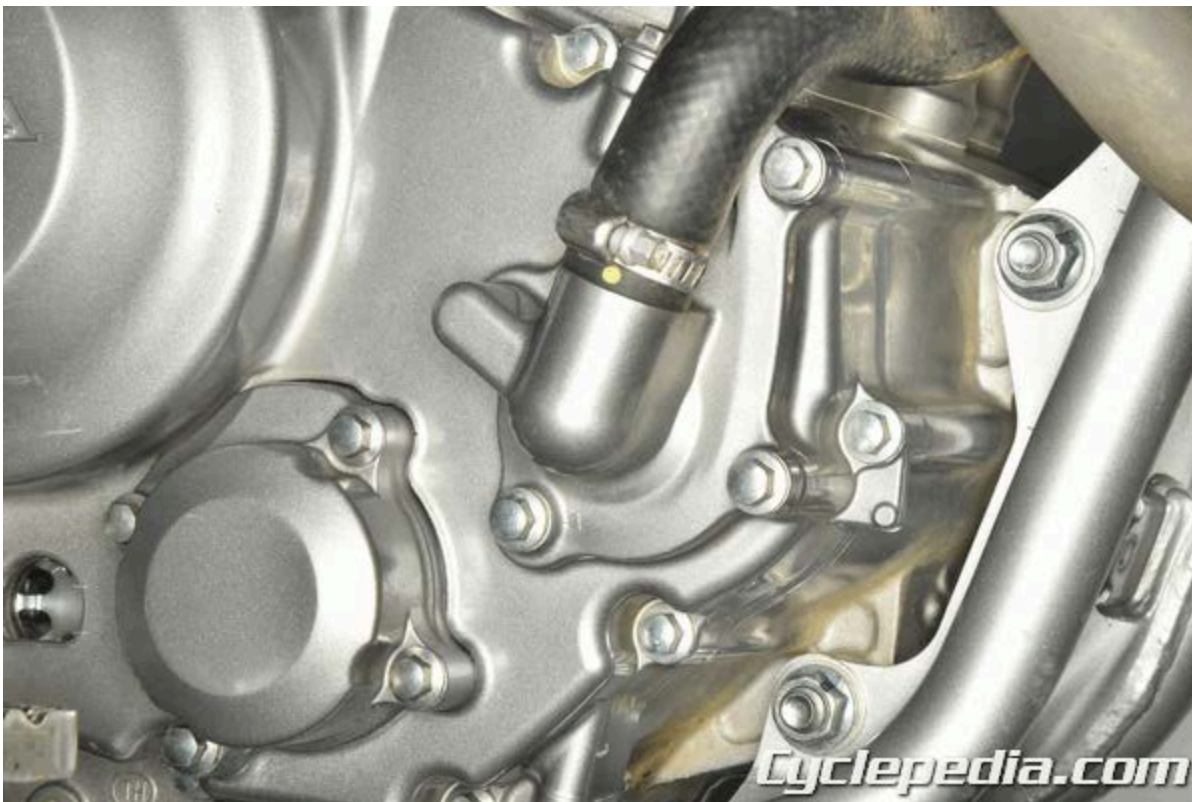


Remove the clutch cable guide bolts with an 8 mm socket.

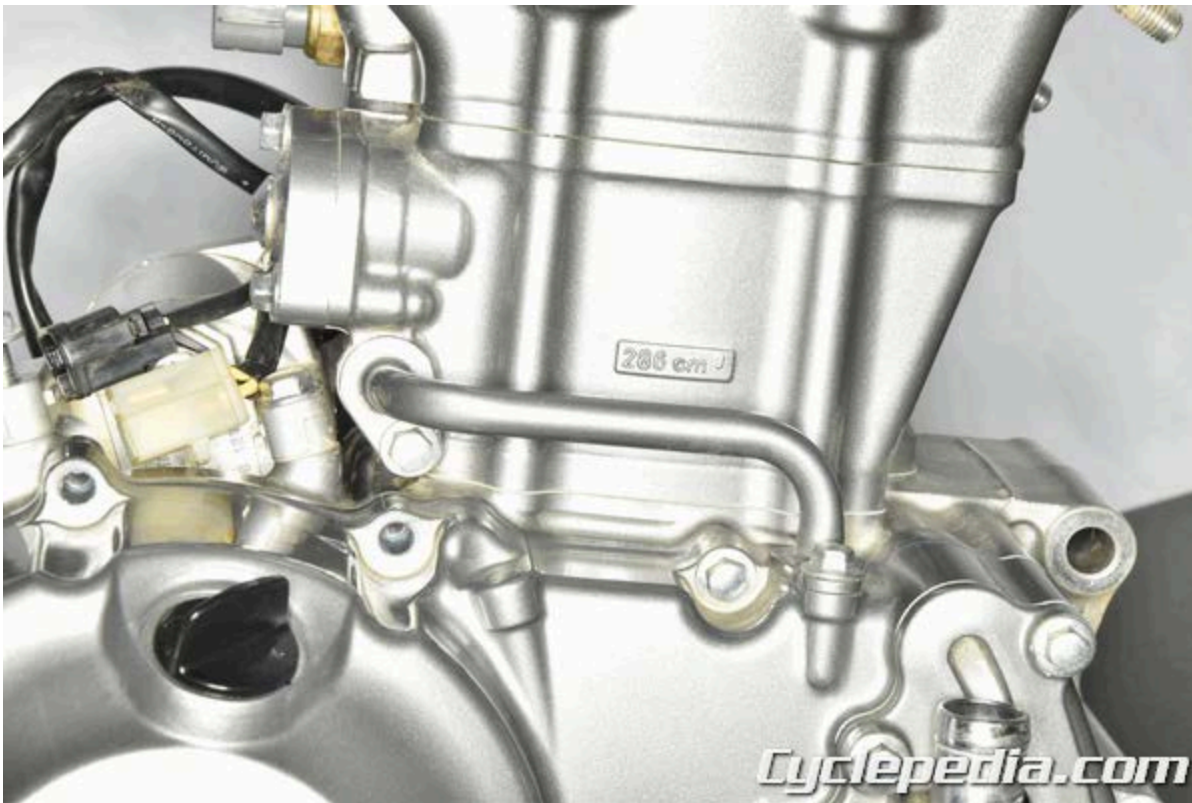




Disconnect the clutch cable from the lifter arm.



Loosen the hose clamp with a suitable driver or socket and carefully disconnect the radiator outlet hose from the water pump inlet.



Remove the water pipe bolts with an 8 mm socket.

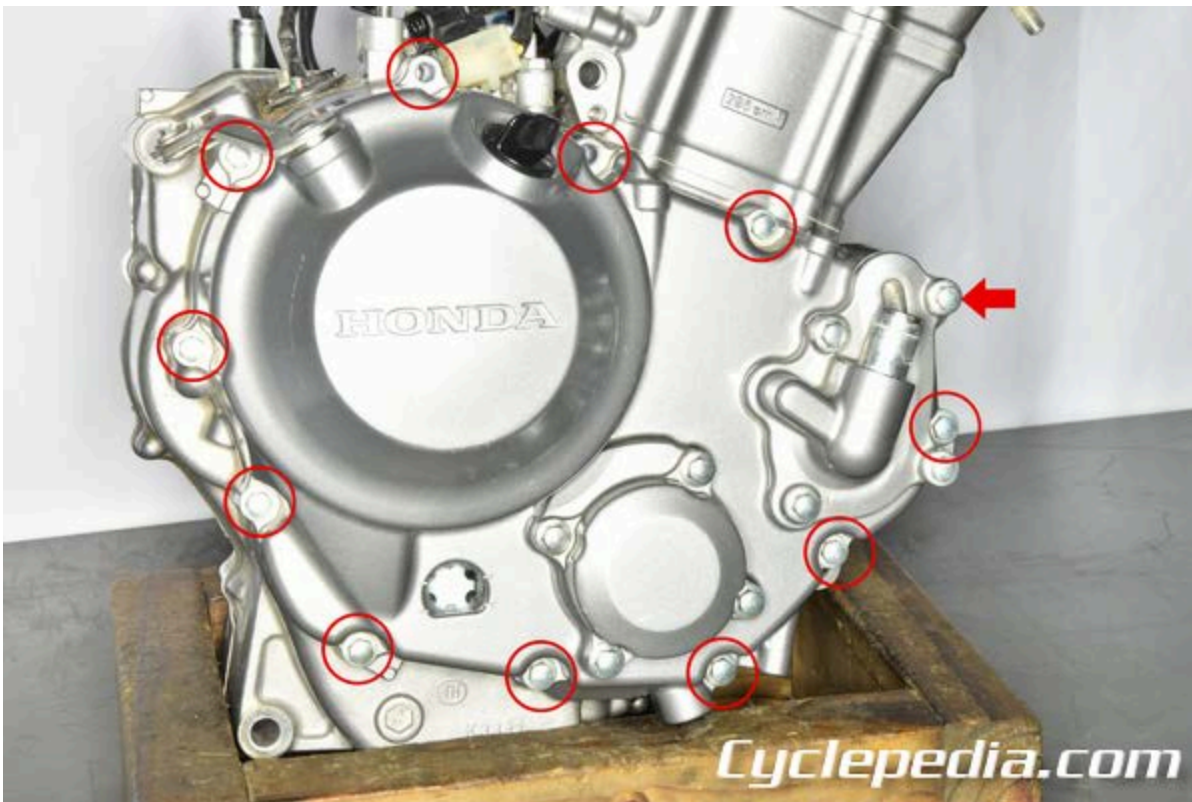


Remove the water pipe.





Remove and discard the old O-rings. Replace with new ones come reassembly.

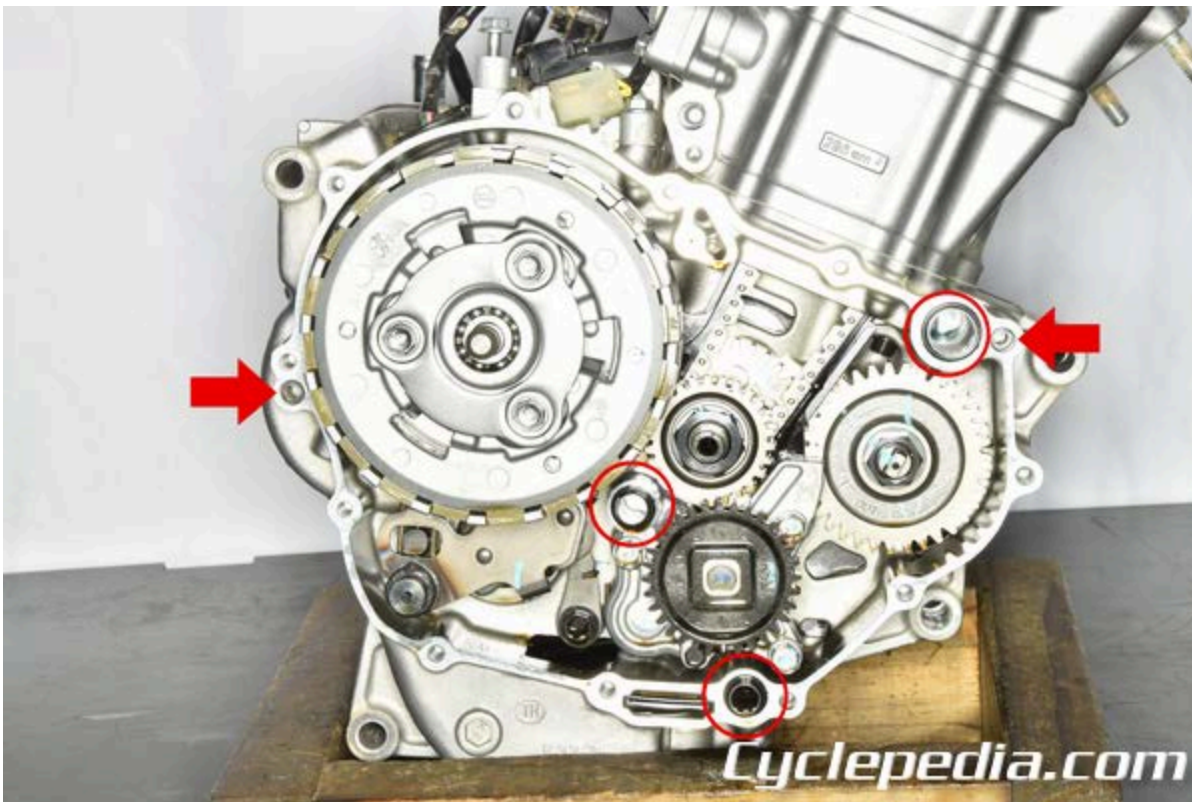


Using a 8 mm socket, loosen the right crankcase cover bolts (circles) and the top front water pump housing bolt (arrow) a little at a time in a crisscross pattern.

Note: Two of the cover bolts were removed earlier when removing the clutch cable guide.



Remove the clutch cover. Carefully scrape away any old gasket material.



Remove the two dowel pins (arrows), as well as the three collars and O-rings (circles). Discard the O-rings and replace with new ones during installation.

## Clutch Component Removal

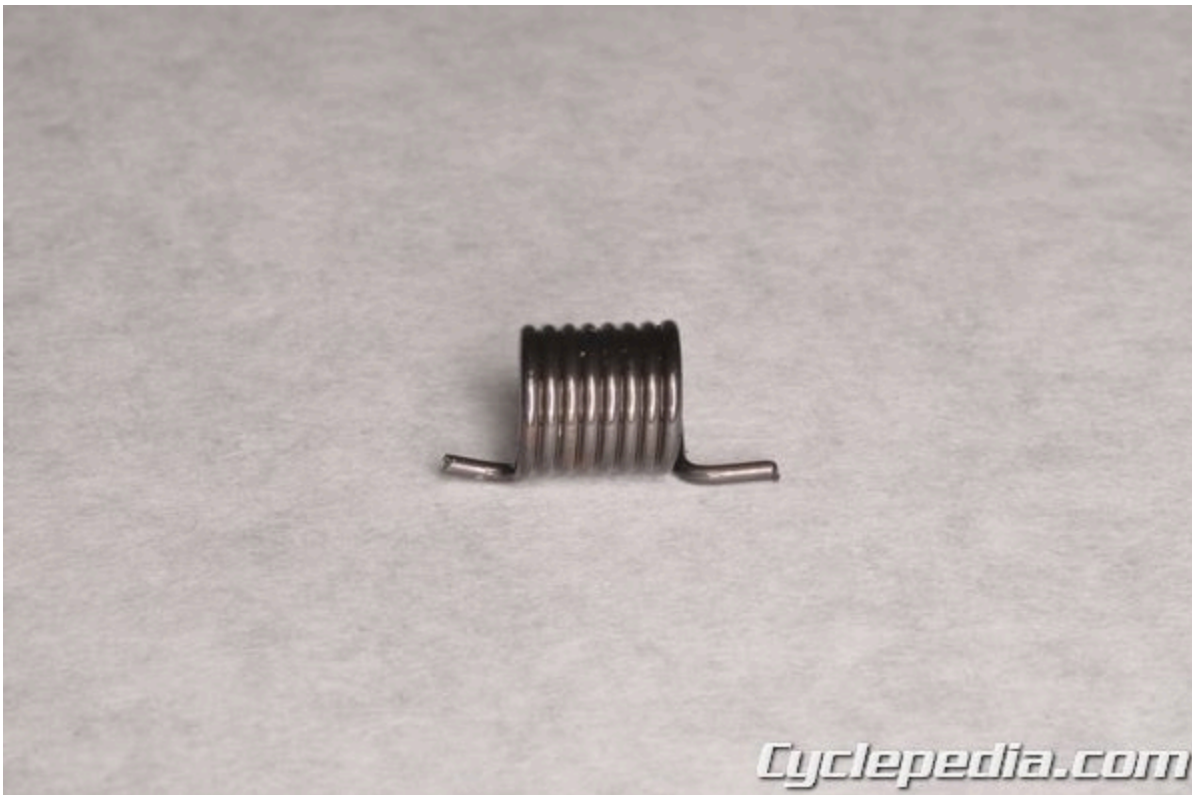




Remove the spring from the clutch lifter arm.



Remove the clutch lifter arm.



Inspect the clutch lifter arm and spring for abnormal wear or damage.



Inspect the dust seal.





Inspect the needle bearings, replace if damaged. Use a bearing puller to remove the old bearings, drive in the lower bearing first using a suitable bearing driver.

The lower bearing should sit **49 to 50 mm** from the surface.

**Special Tools –**

**Pilot Collar, 16 mm:** 07PAF-0010620

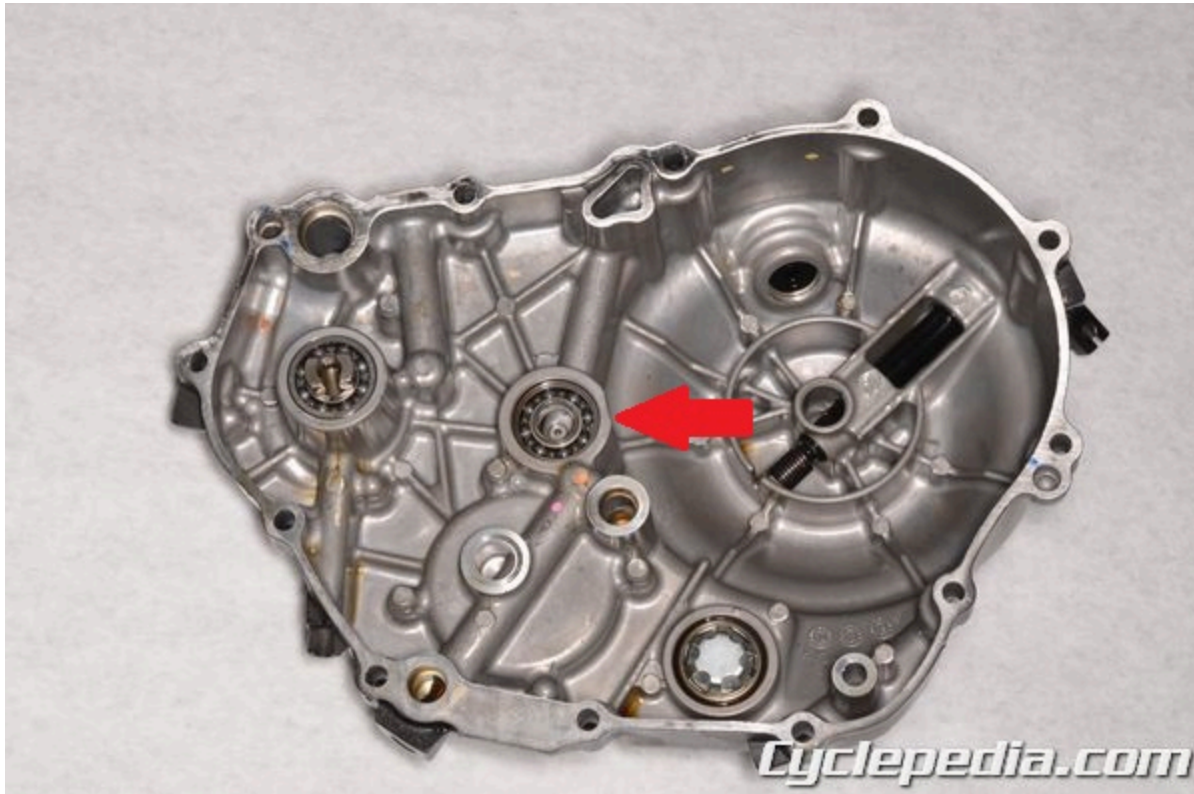
**Bearing Remover Head, 10 mm:** 07746-0050200



Drive in the The new upper bearing, then drive in a new dust seal.

The upper bearing should sit **6.5 to 7.5 mm** from the surface.

The dust seal should sit **0.5 to 1.0 mm** from the surface.



Inspect the crankshaft bearing (red arrow) for wear. Use a bearing puller to remove the old bearing. Lightly heat the cover with a heat gun and drive the new bearing in until fully seated with the marked side facing up.





Loosen the clutch bolts in several steps using a crisscross pattern with a 10 mm socket.



Remove the bolts and the spring setting plate.



Remove the clutch springs.



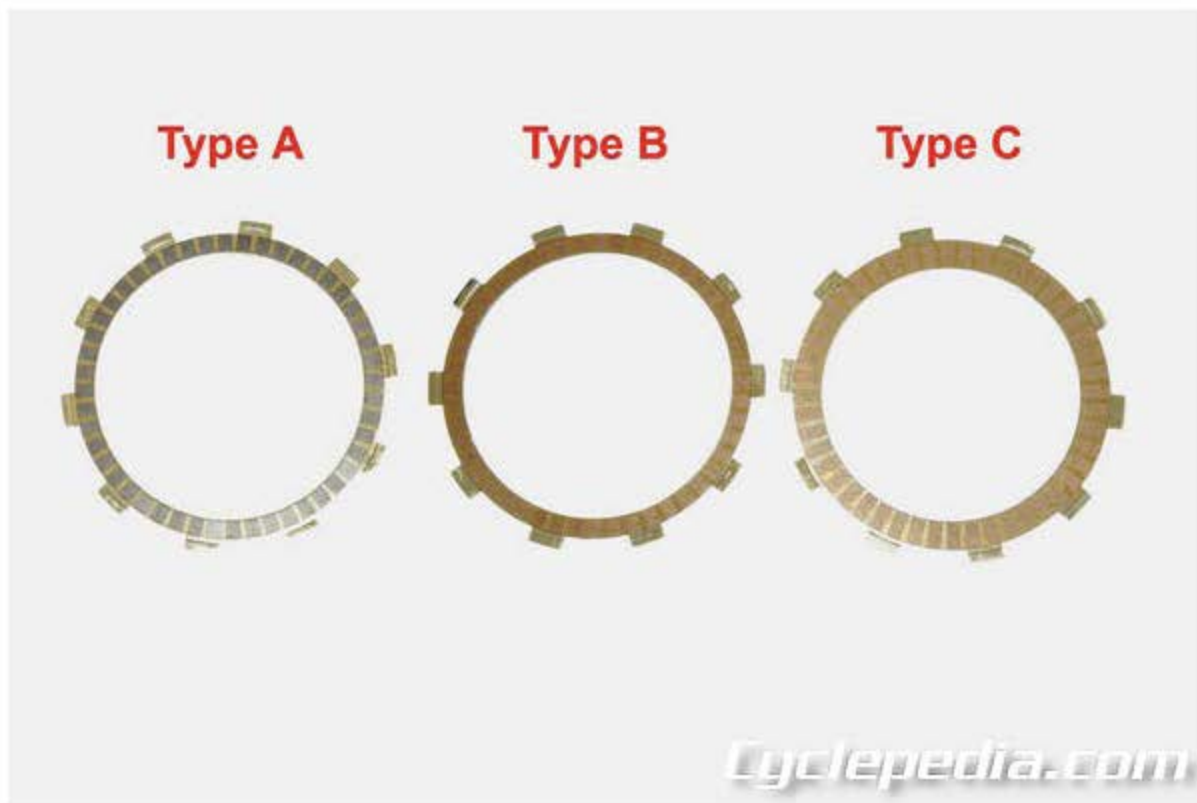


Remove the pressure plate (in this case along with the outer friction disc and steel plate).



Recover the clutch spring seats as needed.





Note the following:

Keep all friction discs and steel plates in order of assembly for installation purposes and/or reference. If reused all discs and plates must be installed in the same positions facing the same components. There are 3 different friction plate designs which are identified by their patterns. The first and last friction plates in the stack are one design (A), the second friction plate in the stack (behind the pressure plate and first friction plate/steel disc) is a unique friction material pattern (B), and the middle two plates are a third design/pattern (C).

The outer plates (Type A) are visually easiest to tell apart from the others as the friction material is a little lighter in color. Type C is also easy to spot as it has taller/thinner strips of material as well as a slightly wider body. Type B is the size of Type A, but the color of Type C.

See more about the clutch plates here:



Most of the steel discs have a wider body (as seen on the left) but the outer most disc is unique (seen on the right).



Remove the outer steel plate (this plate is smaller than the rest of them).



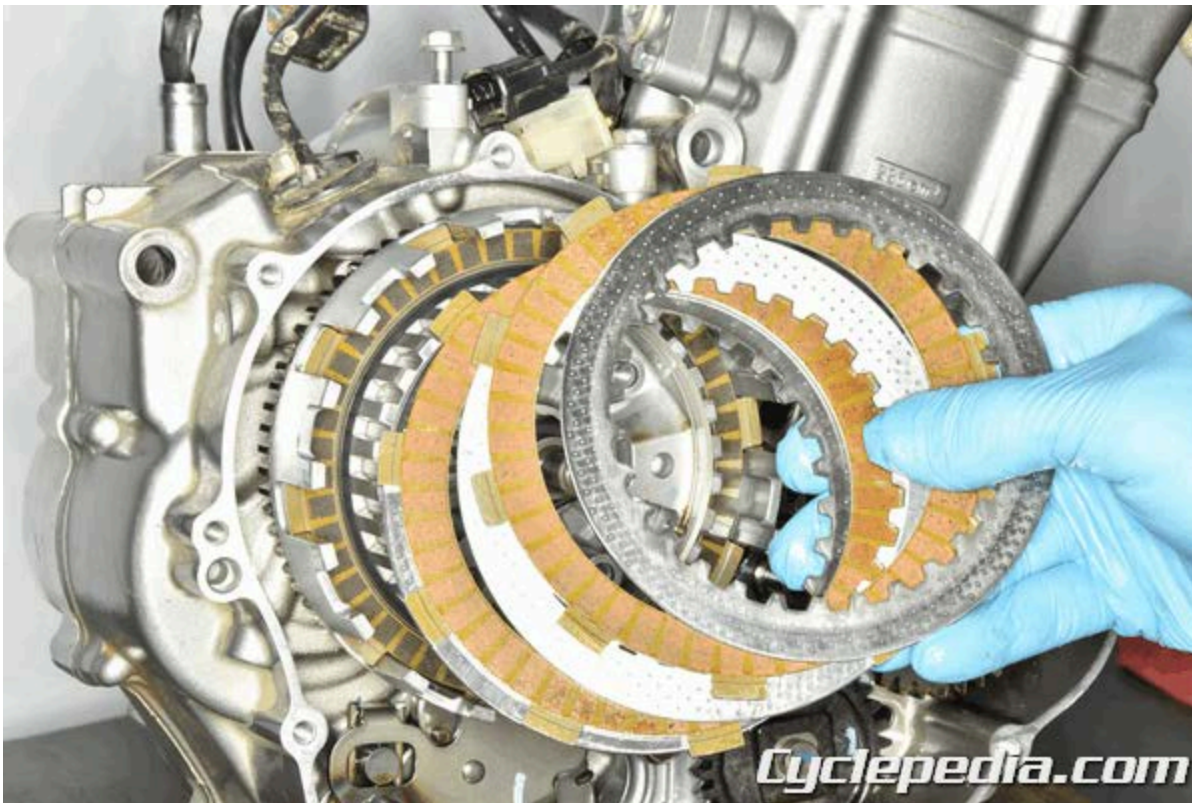


Remove the outer friction disc (type A).



Remove the second friction disc (type B). This is the only disc of this type in the set.





Remove the middle of the stack, the two type C friction discs and the surrounding steel pates.



Remove the last of the friction discs, the other type A disc.





Note the direction it is facing as the same side should face out on installation, then remove the judder spring from the basket.



And remove the judder spring seat.





Remove the clutch lifter from the clutch center.



The hub lock nut is staked to lock it in position and keep it from loosening in service.





Use a chisel to carefully un-stake the nut, but do not damage the transmission shaft. Do not reuse the lock nut.



Hold the clutch hub with a center holder and loosen the lock nut with a 24 mm socket.

**Special Tool – Clutch Center Holder:** 07724-0050002





Remove the nut and washer. Discard the nut and replace with a new one during installation.



Remove the clutch hub.





Remove the thrust washer.



Remove the clutch basket.





Remove the needle bearing.



Remove the guide.





Remove the main shaft washer.

## Inspection



Inspect the pressure plate assembly for signs of wear or damage at the splines.



Turn the clutch lifter bearing with a finger. If the bearing turns rough or feels anyway other than smooth and quiet replace the bearing or the assembly as needed.

Note: If a replacement bearing is available, drive out the old bearing, apply engine oil to a new bearing. Install the bearing evenly with the marked side facing out until fully seated.



Inspect the clutch springs for fatigue and damage. Measure the clutch spring free length. The service limit for clutch spring free length is **37.5 mm (1.48 in)**. If one spring is worn replace all of the springs as a set.



**Spring free length:** 35.79 mm (1.409 in) standard, 34.79 mm (1.370 in) limit



Inspect the clutch hub for abnormal wear, pay close attention to the areas where the clutch plates ride. Replace the hub as needed.



Inspect the fiber clutch plates for wear and discoloration. Measure the thickness of the fiber clutch plates. The service limit is **2.27 mm (0.089 in)** replace all the clutch plates as a set if any are beyond the limit.

**Friction plate thickness:** 2.92 – 3.08 mm (0.115 – 0.121 in) standard, 2.70 mm (0.106 in) limit



Check the metal plates for warp using a feeler gauge and a surface plate. The warp service limit is **0.15 mm (0.006 in)** replace all clutch plates as a set if any are beyond the limit.

**Steel disc warpage (limit):** 0.15 mm (0.006 in)

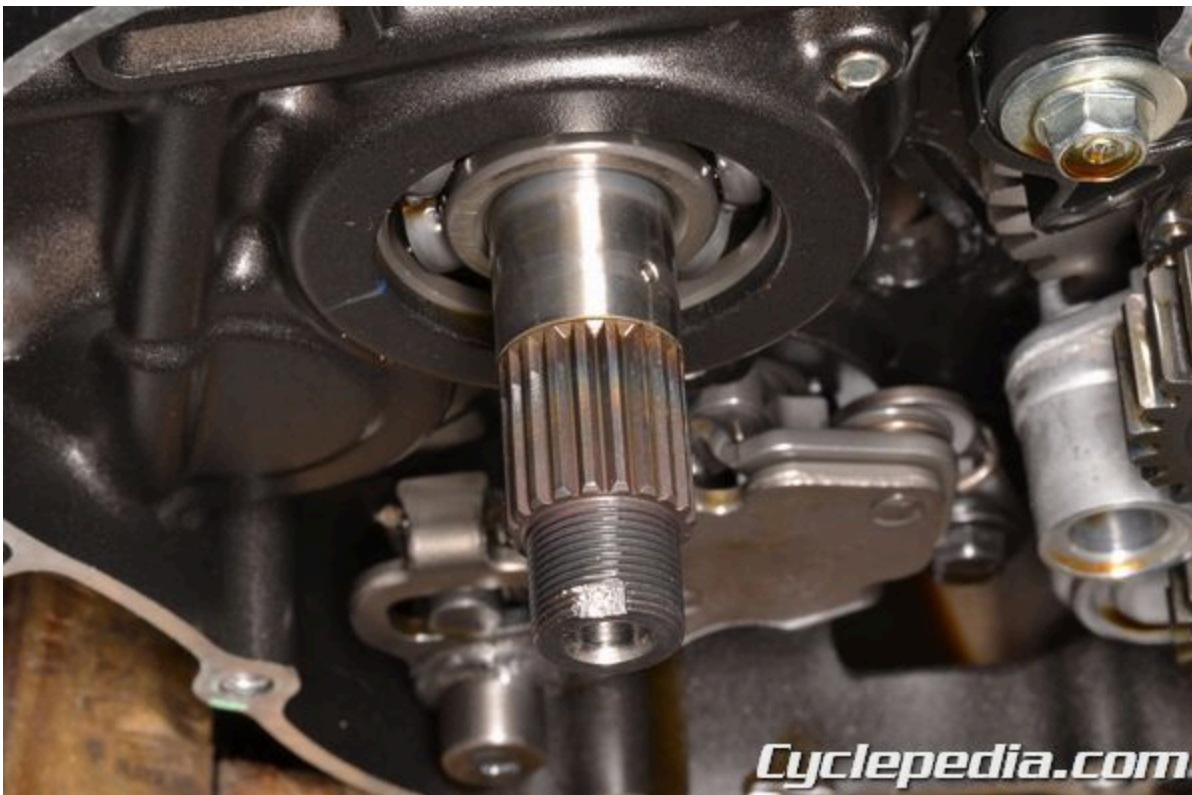


Inspect the clutch basket fingers for signs of wear from the clutch plates.





Inspect the primary gear teeth for wear and damage.



Measure the area of the main shaft where the guide rides.

**Mainshaft O.D. at clutch outer guide:** 19.966 – 19.980 mm (0.7861 – 0.7866 in)

Note: Both the mainshaft and the outer clutch guide have an ID color paint mark. If the clutch outer assembly is replaced, be sure to select the same color codes of the mainshaft and the outer guide.



Inspect the needle bearing for wear and damage. Measure the inside diameter of the guide.

**Clutch outer guide inner diameter:** 19.978 – 19.992 mm (0.7865 – 0.7871 in)

Install the clutch. See the [Clutch Installation](#) <sup>[6]</sup> topic for more information.  
URLs in this post:

[1] Engine Oil: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/engine-oil/>

[2] Coolant: <https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/coolant/>

[3] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

[4] Rear Brake Pedal: <https://www.cyclepedia.com/manuals/online/cpp-323/rear-brake/brake-pedal/>

[5] Gearshift: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/gearshift/>

[6] Clutch Installation: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/clutch-installation/>

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## - Honda CRF300L Service Manual

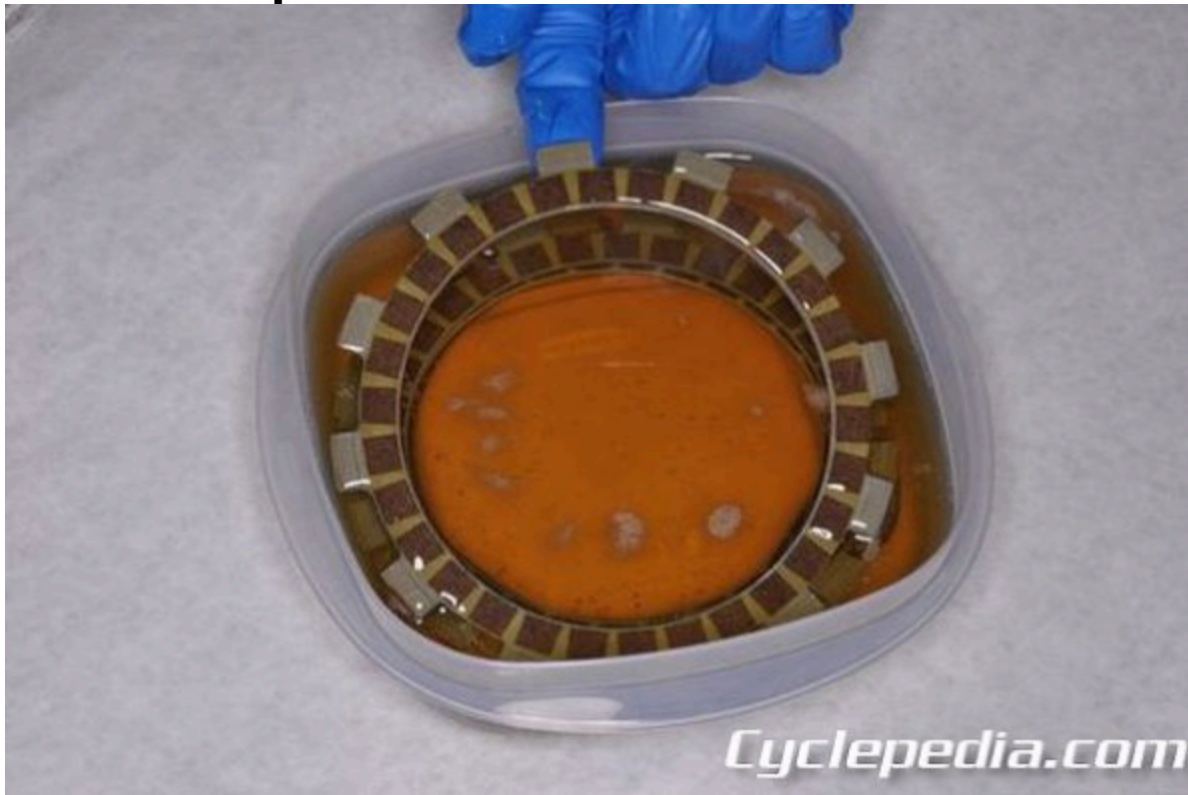
### Clutch Installation

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### Suggested Tools and Supplies

8 mm Socket  
10 mm Socket  
24 mm Socket  
Ratchet  
Torque Wrench  
Nitrile Gloves  
Safety Glasses

### Clutch Component Installation



If you are installing new fiber plates, soak them in a container of fresh engine oil before starting installation.



Install the main shaft washer.

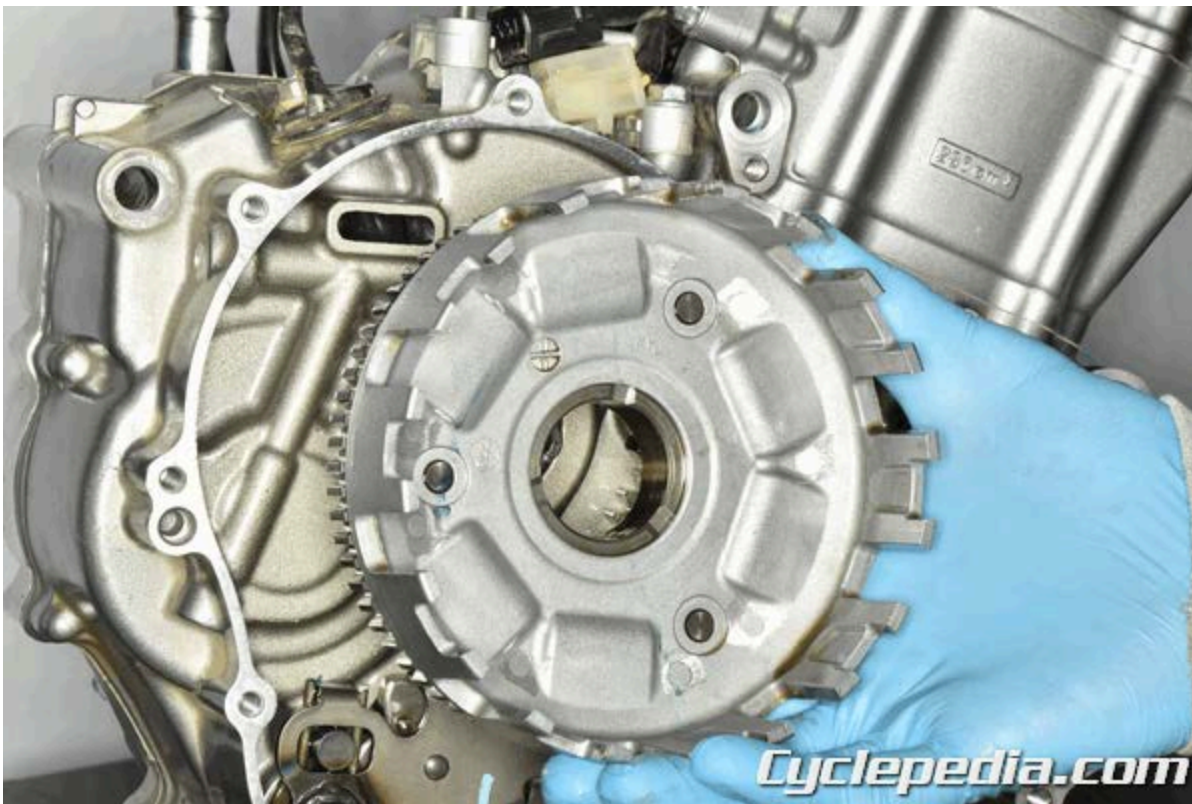


Apply a 1:1 mix of molybdenum and engine oil to the inside of the guide and install it onto the main shaft.





Apply engine oil to the needle bearing rollers and install the bearing onto the guide.



Install the clutch basket.





Install the thrust washer.



Install the clutch hub.





Apply a light coat of engine oil to threads and seating surface of a new lock nut, then install the washer and lock nut.



Hold the clutch hub with a special holder tool and tighten the lock nut to specification.

**Clutch center lock nut (use once, oil threads, and stake):** 108 N-m (11.0 kgf-m, 80 ft-lb)

**Special Tool – Clutch Center Holder:** 07724-0050002





Stake the lock nut into the mainshaft groove, but take care not to damage the mainshaft threads.



Staking the nut will lock it to the shaft and keep it from loosening in service.





Apply engine oil to the clutch lifter piece and install it into the main shaft.



Install the judder spring seat.



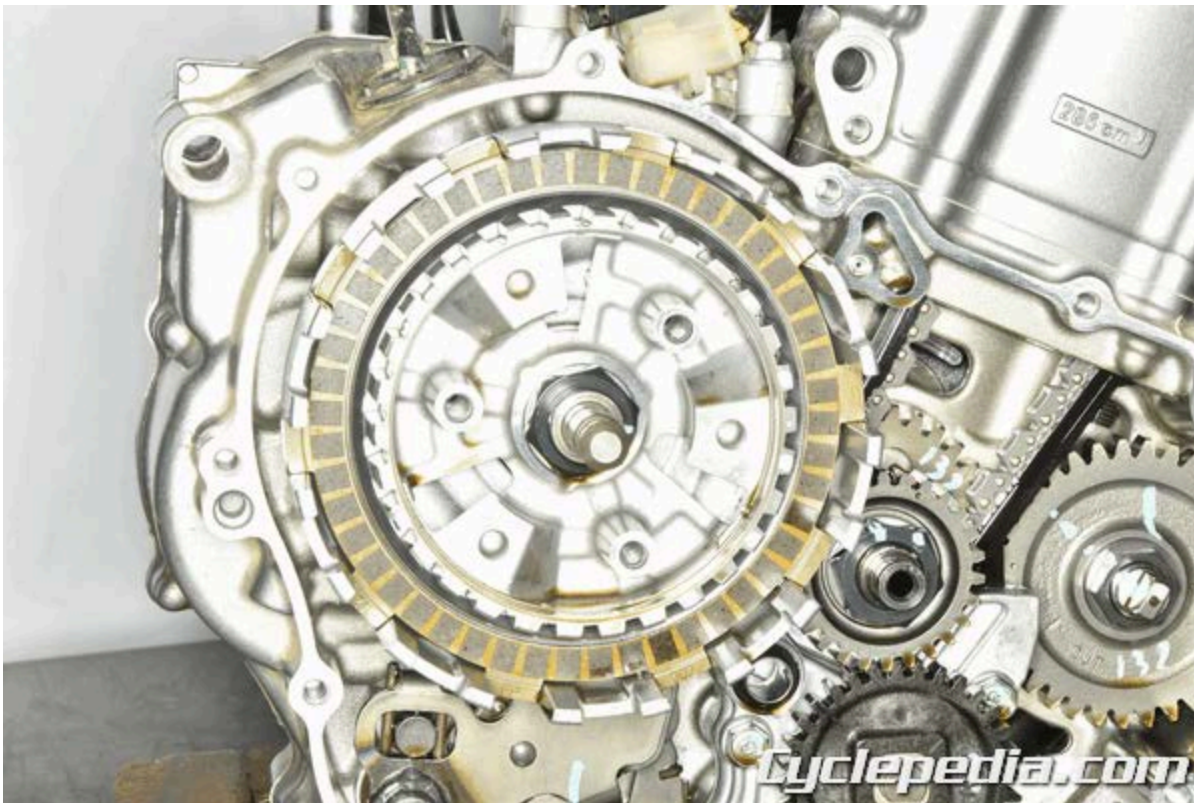


Install the clutch judder spring.

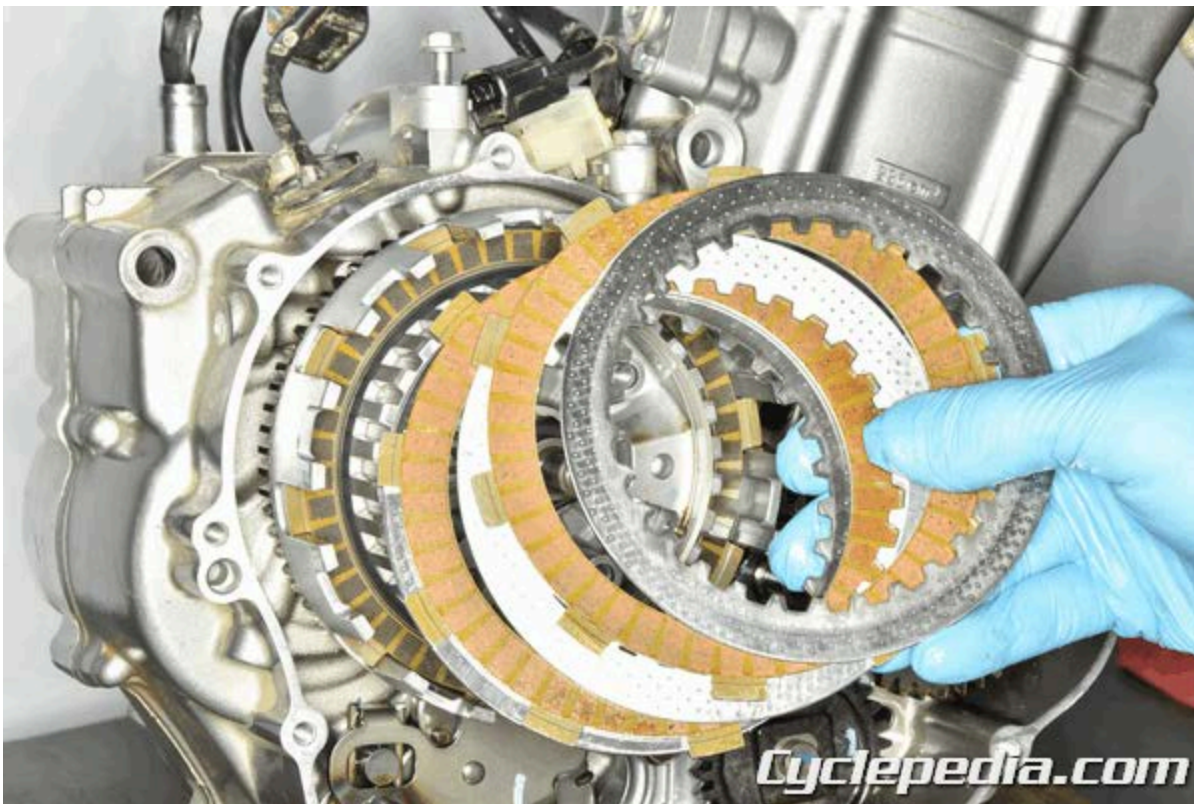


Make sure the same side of the judder spring is facing outward as noted during removal (meaning the raised outer edge of the spring is facing outward toward the clutch stack).





Start installing the clutch stack by placing the inner most friction disc (one of the two Type A discs) in the basket.



Install the middle of the stack starting with the rear most steel disc and then both of the Type C friction plates with their steel discs.

Note: Remember the entire clutch stack is made up of alternating friction plates and steel discs. The first one installed is a Type A friction plate, then a steel disc, then a Type C plate followed by a disc, then



another Type C and a disc, then a Type B and a disc, then finally a Type A plate again which contacts the pressure plate when it is installed.



Install the single Type B friction plate.



Place the outer Type A plate on the pressure plate and install a steel disc to sit between it and the Type B plate in the clutch stack.





Install the pressure plate and outer friction disc (type A)/steel plate.

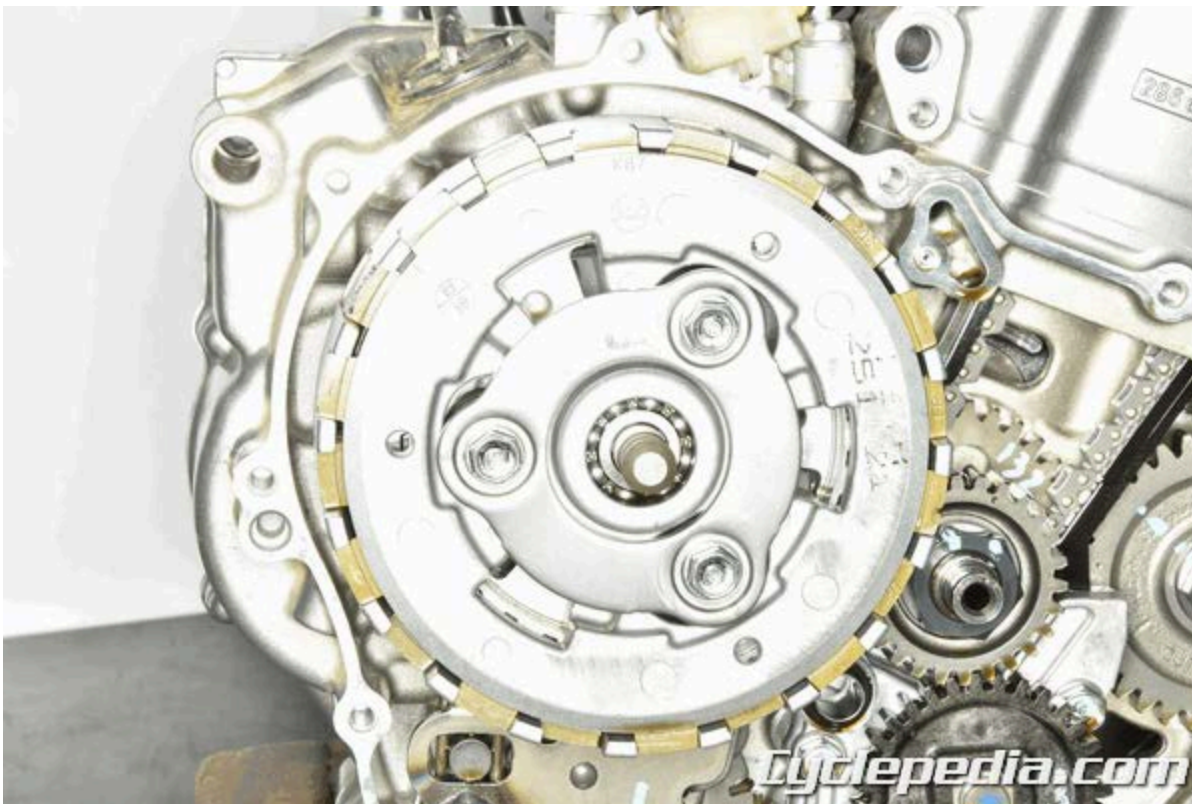


Install the clutch springs then position the setting plate over top of them.





Lightly thread the three clutch spring bolts.



Tighten the clutch bolts evenly in several steps using a crisscross pattern until they reach specification.

**Clutch lifter plate bolt:** 12 N-m (1.2 kgf-m, 9.0 ft-lb)





Apply a light coating of grease to the clutch lifter arm oil seal lips and a moly oil solution to the arm sliding surface. Install the clutch lifter arm.



Install the spring. Make sure the short spring post is in the lifter arm and the long one is in the cut out of the cover.

## **Right Crankcase Cover Installation**

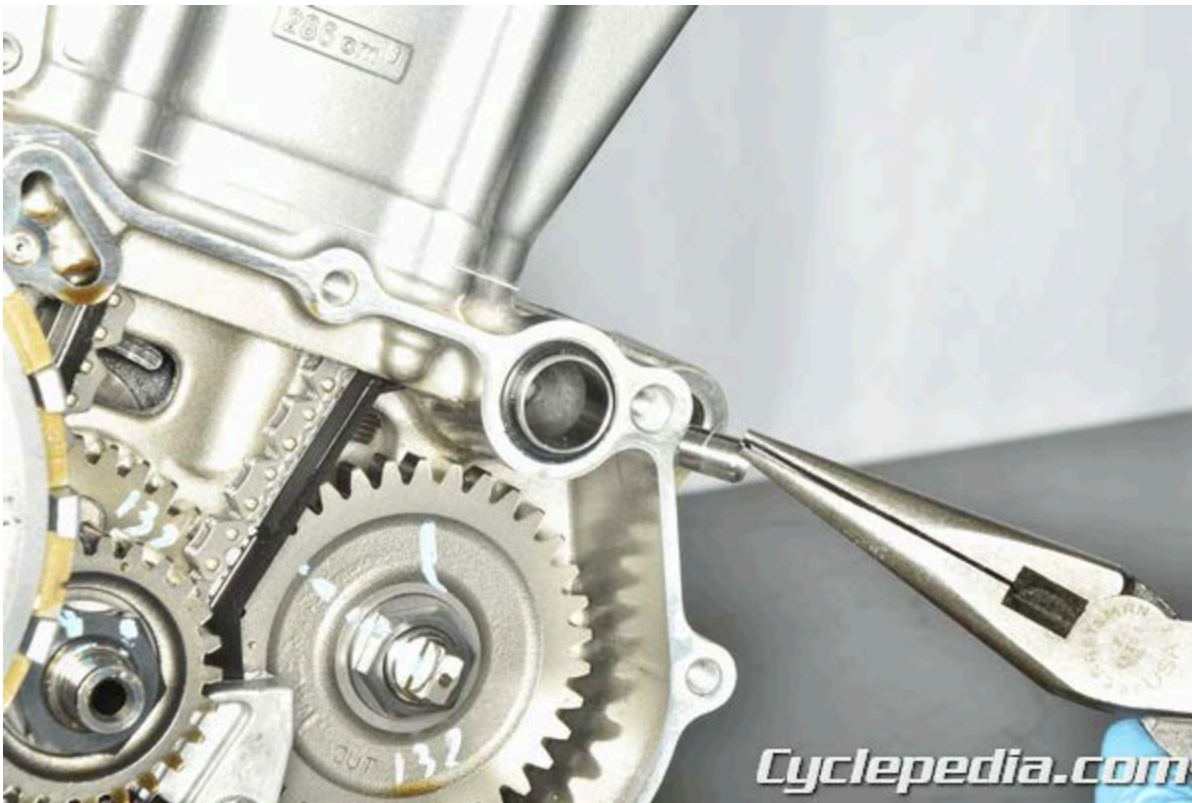


Install the three collars using a new O-rings.



Be sure to return the collars to their original positions.

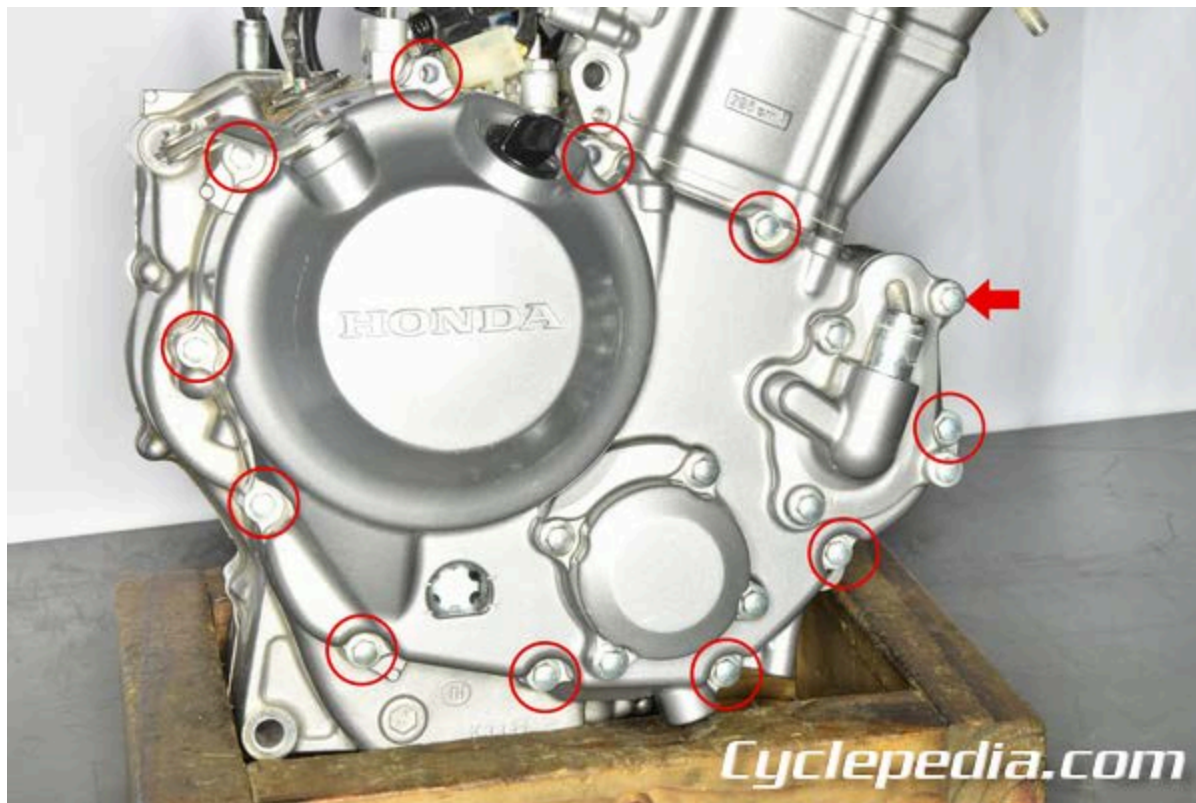




Install the two dowel pins, then position a new right crankcase cover gasket.



Install the right crankcase cover rotating the water pump shaft as needed to align it with the balancer shaft. Also, make sure the clutch lifter arm properly engages as the cover is positioned.



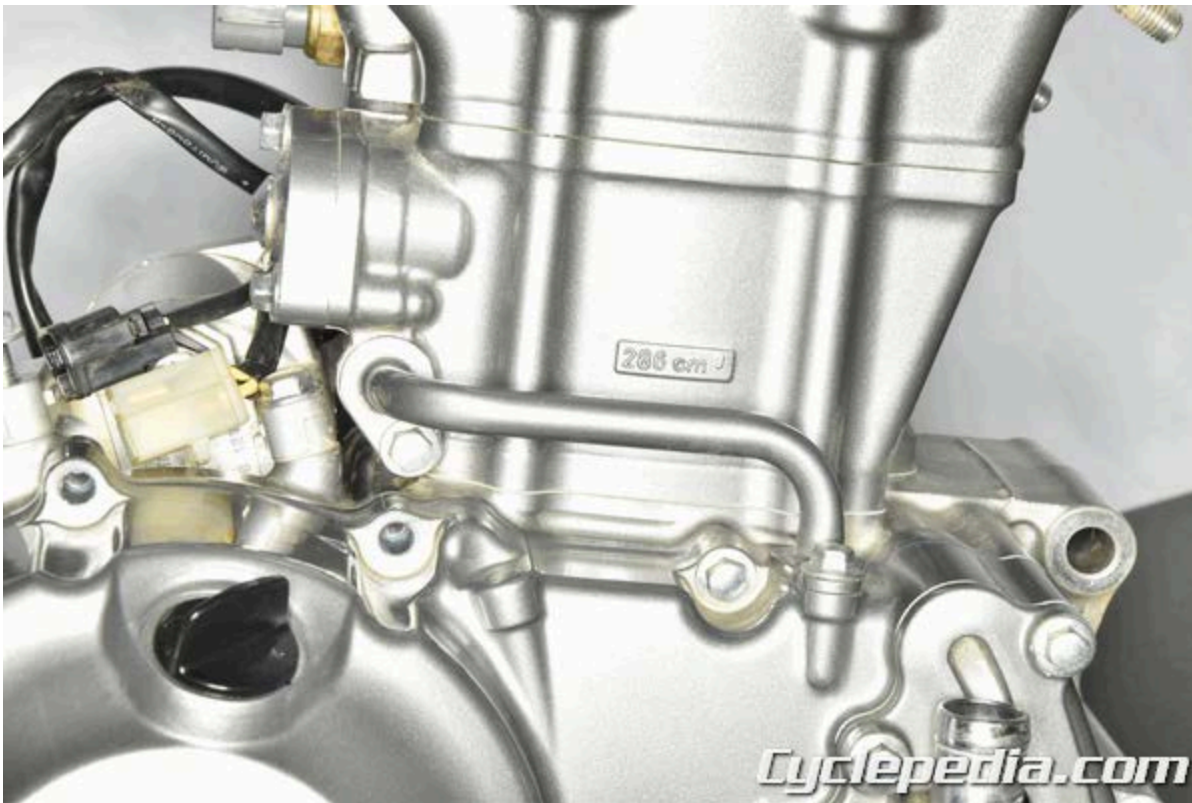
Install the clutch cover bolts (circles) and the top front water pump housing bolt (arrow). Tighten the bolts securely using several steps of a crisscross pattern and an 8 mm socket.

Note: The two bolts that retain the clutch cable guide can be left out for now and installed with the guide once the cable is reconnected.

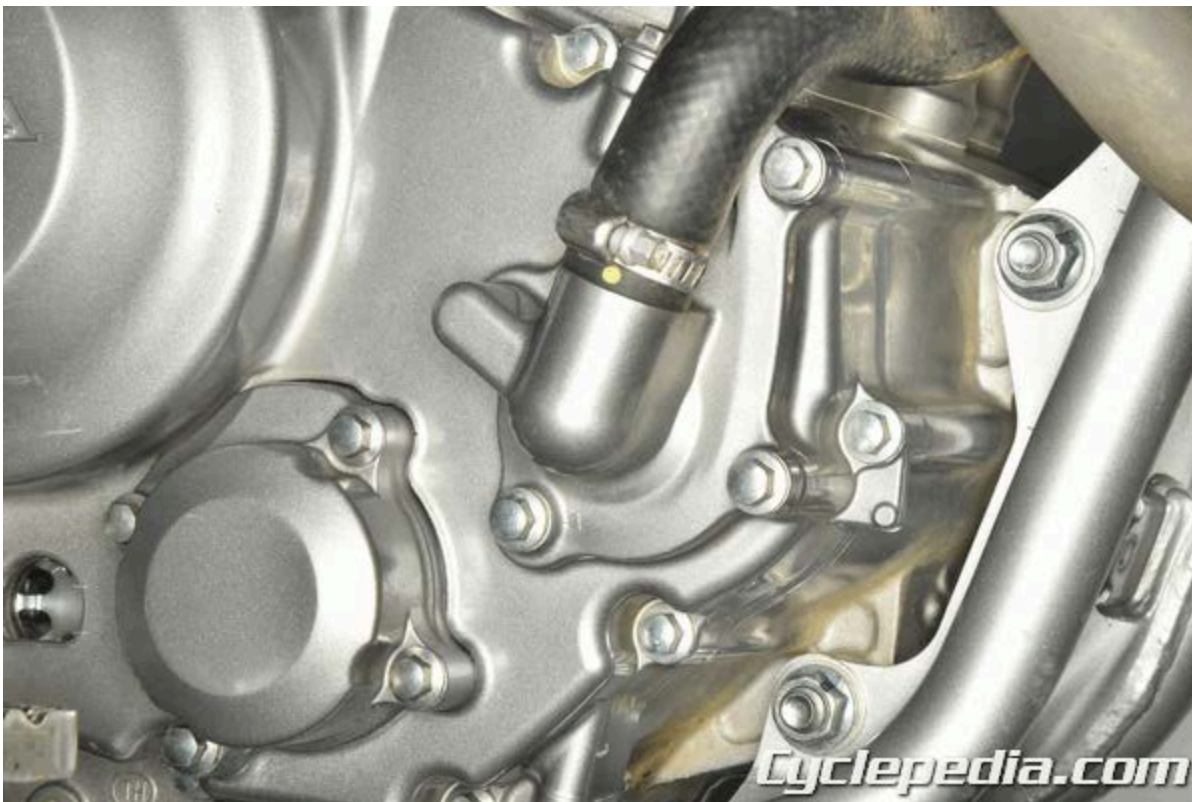


Install new O-rings on the water pipe and apply a light coat of engine oil to them.





Install the water pipe and tighten the bolts securely using an 8 mm socket.



Install the radiator outlet hose to the water pump fitting and tighten the band screw securely.



Install the clutch cable to the lifter arm.



Install the cable guide and tighten the bolts securely using an 8 mm socket.

Adjust the clutch cable free play. See the [Clutch Cable Free Play](#) <sup>[1]</sup> topic for more information.

Install or perform the following:



Gearshift <sup>[2]</sup> (pedal)

Rear Brake Pedal <sup>[3]</sup>

Bodywork <sup>[4]</sup> (frame guard)

Engine Oil <sup>[5]</sup> (refill)

Coolant <sup>[6]</sup> (refill and bleed)

URLs in this post:

[1] Clutch Cable Free Play: **<https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/clutch-adjustment/>**

[2] Gearshift: **<https://www.cyclepedia.com/manuals/online/cpp-323/engine/gearshift/>**

[3] Rear Brake Pedal: **<https://www.cyclepedia.com/manuals/online/cpp-323/rear-brake/brake-pedal/>**

[4] Bodywork: **<https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>**

[5] Engine Oil: **<https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/engine-oil/>**

[6] Coolant: **<https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/coolant/>**

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Gearshift

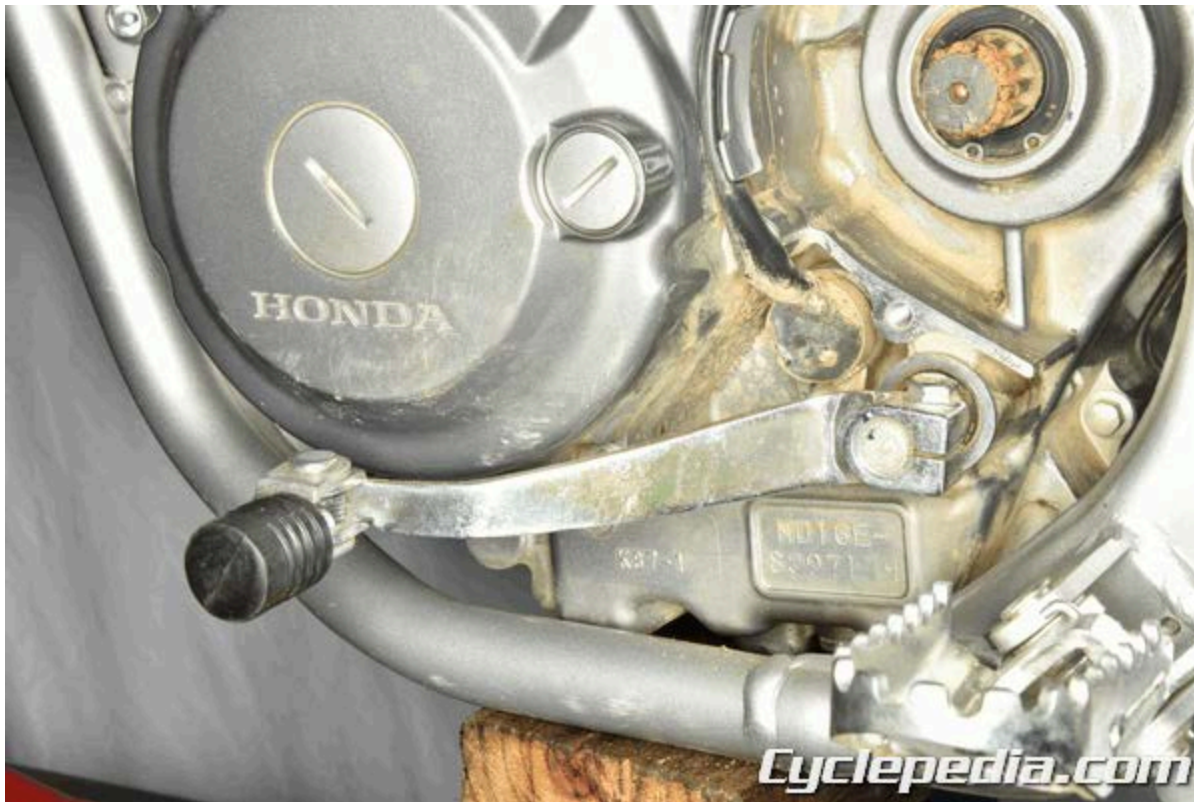
**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

### **Suggested Tools and Supplies**

10 mm Socket  
Ratchet  
Torque Wrench  
Bearing Remover (bearing replacement)  
Bearing Driver (bearing replacement)  
Seal Pick (seal or bearing replacement)  
Hammer  
Punch  
Nitrile Gloves  
Safety Glasses

## **Shift Pedal Removal**

Remove the engine sprocket cover for clearance. See the [Chain Guards](#) <sup>[1]</sup> topic for more information.

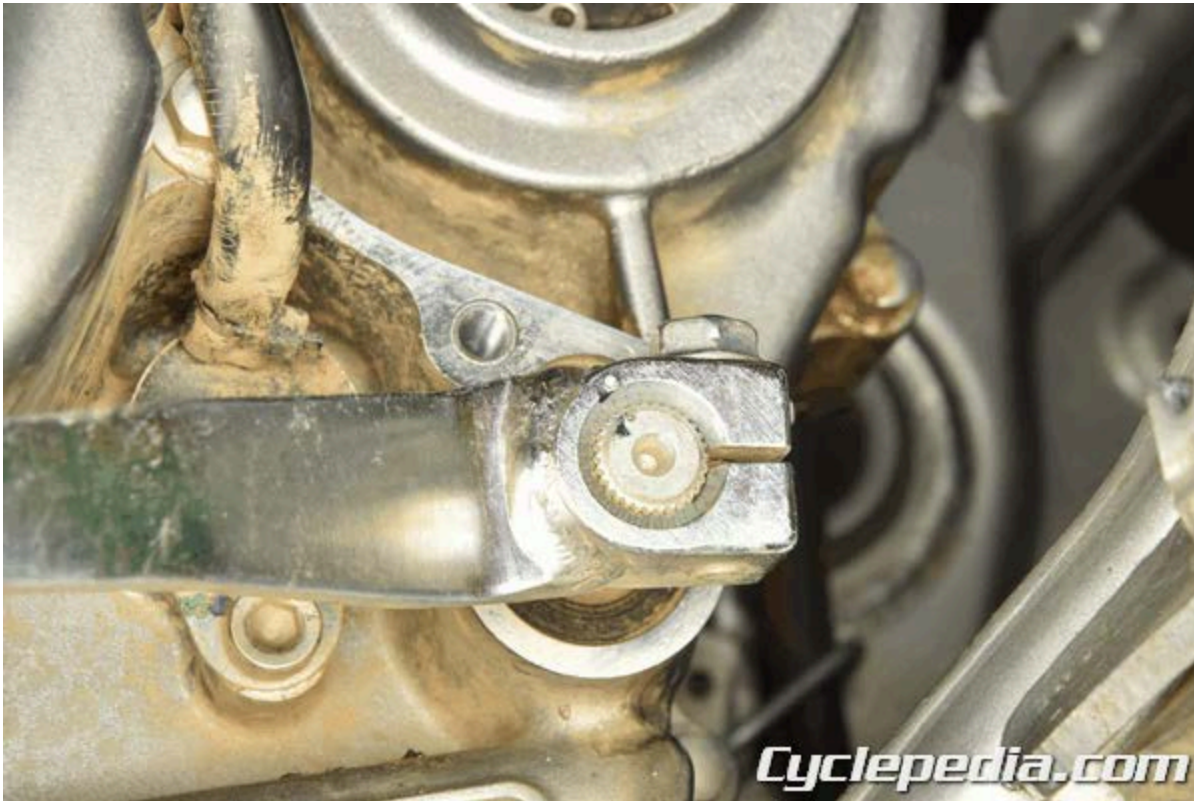


Loosen the shift pedal pinch bolt with a 10 mm socket. Free the shift pedal from the shaft.

Note: If the gearshift mechanism assembly is to be removed from the crankcases clean the shift spindle to prevent any unnecessary damage to the seals and to prevent contamination in the cases.

## **Installation**





Fit the shift arm onto the shaft. Align the punch marks on the shaft and pedal. Tighten the shift pedal pinch bolt with a 10 mm socket.

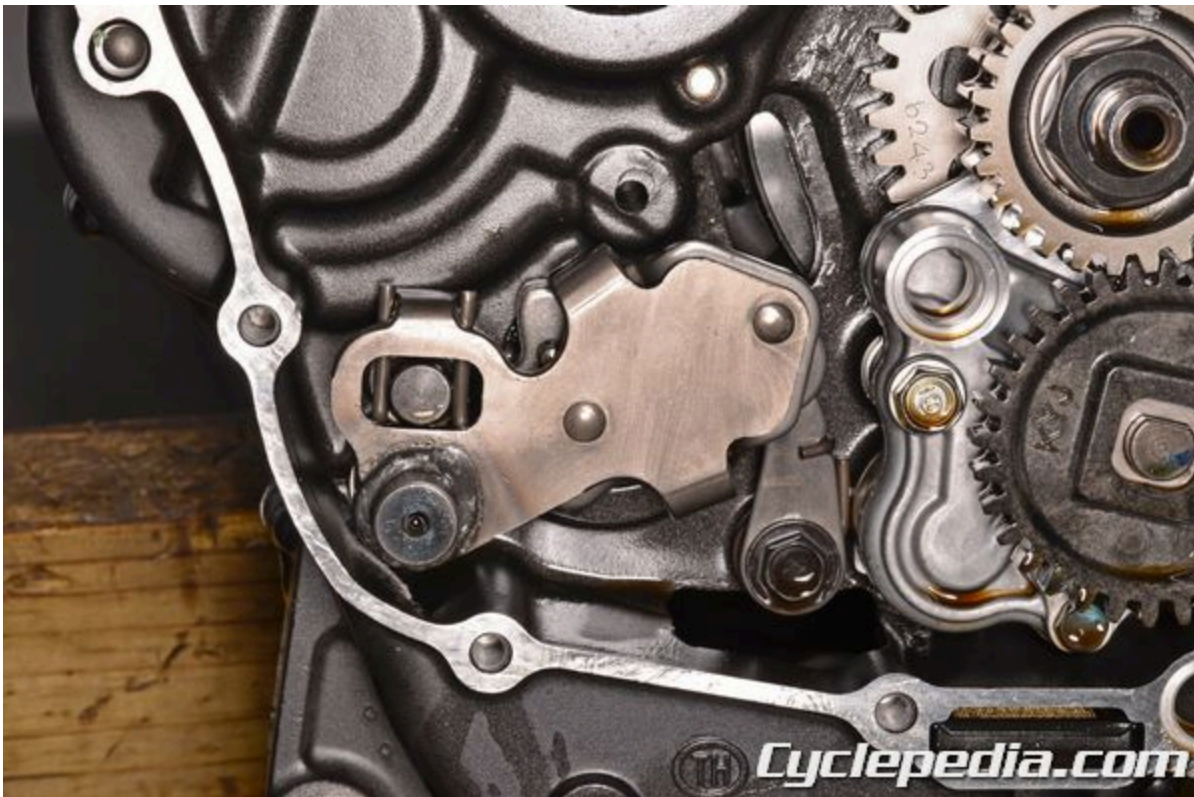
Install the engine sprocket cover. See the [Chain Guards](#) <sup>[1]</sup> topic for more information.

## **Gearshift Mechanism**

Remove the right crankcase cover and the clutch assembly for access. See the [Clutch](#) <sup>[2]</sup> topic for more information.

### **Removal & Inspection**

Remove the shift pedal as detailed earlier in this section.



Slide the gearshift shaft and washer out of the crankcase.



Check the return spring for fatigue or damage, replace it if necessary.

Check the following:

- Gearshift spindle for wear or bend
- Spindle arm for wear, damage or deformation
- Spindle arm spring for fatigue or damage



Replace the gearshift spindle as an assembly if necessary.

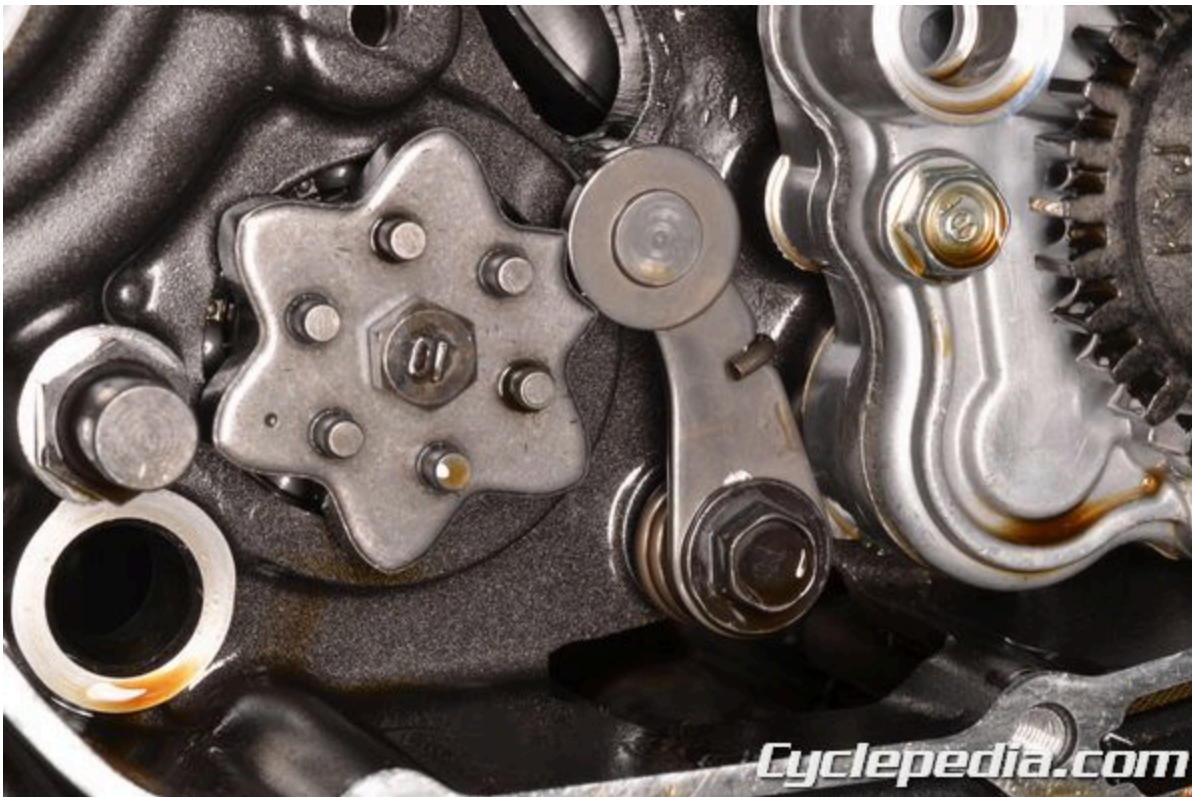


Inspect the gear shift shaft oil seal and bearing.



Remove the seal with a small flat blade screwdriver or seal pick. Avoid damaging the crankcase. Remove the gearshift spindle needle bearing using a bearing puller and install a replacement using a suitable driver. Drive in the new gearshift spindle needle bearing into the left crankcase with the marked side facing outside of the left crankcase until it is fully seated.



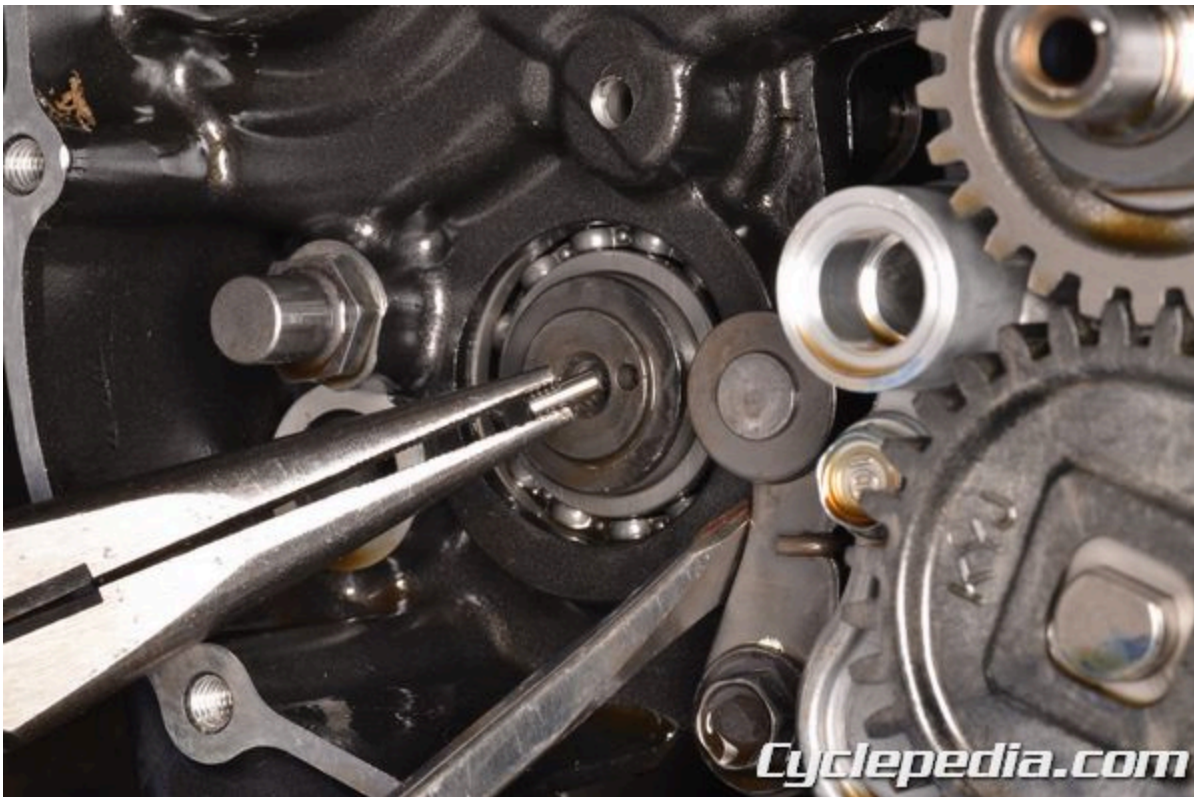


Remove the stopper plate bolt with a 10 mm socket.



Hold back the stopper arm and remove the stopper plate.





Remove the shift cam dowel pins.



Loosen the stopper arm bolt with a 10 mm socket. Remove the stopper arm bolt, stopper arm, washer and spring.





Inspect the stopper arm components for damage and wear.

### Assembly & Installation

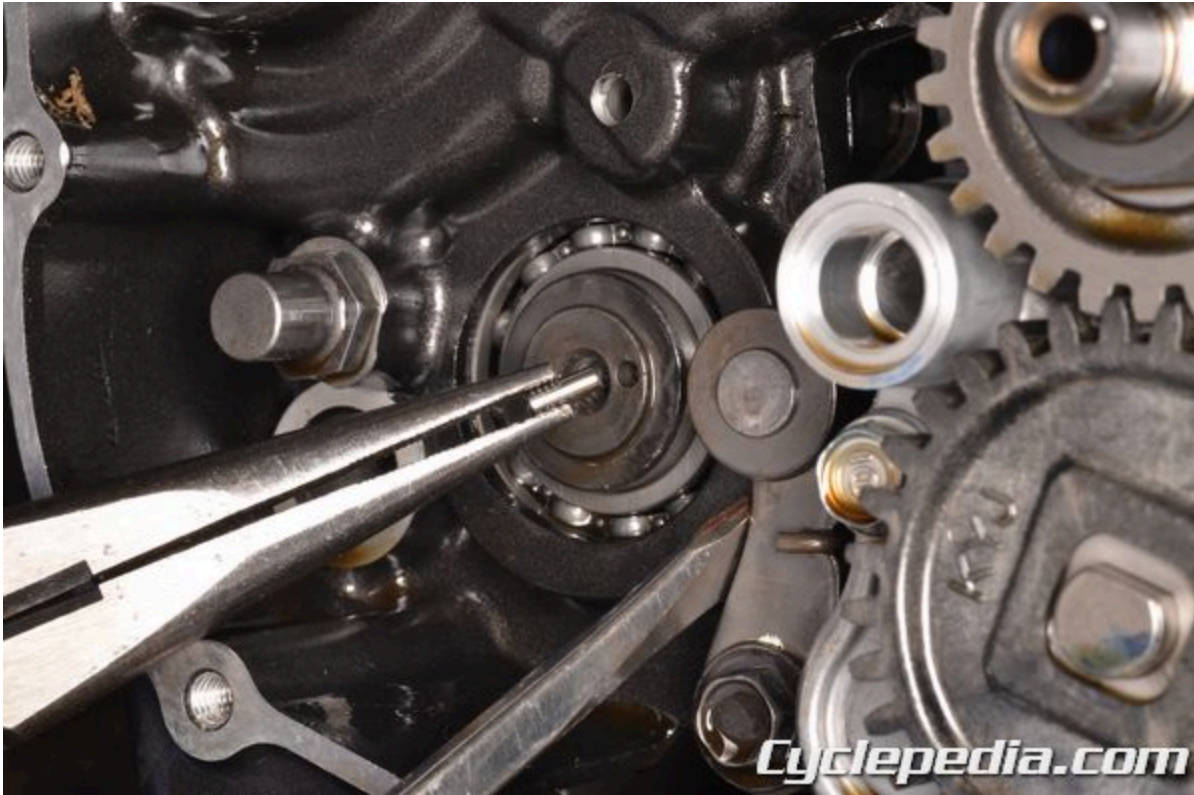


Apply blue Loctite to the threads of the stopper arm bolt. Install the stopper arm bolt, stopper arm, washer and spring. Tighten the stopper arm bolt to specification with a 10 mm socket, then check the arm for proper operation.

**Shift drum stopper arm bolt (use threadlock)\*: 10 N-m (1.0 kgf-m, 7.0 ft-lb)**



\*Note: Coat **6.5 mm  $\pm$  1.0 mm** of the threads with a threadlock compound, measured upward starting **2.0 mm  $\pm$  1.0 mm** from tip

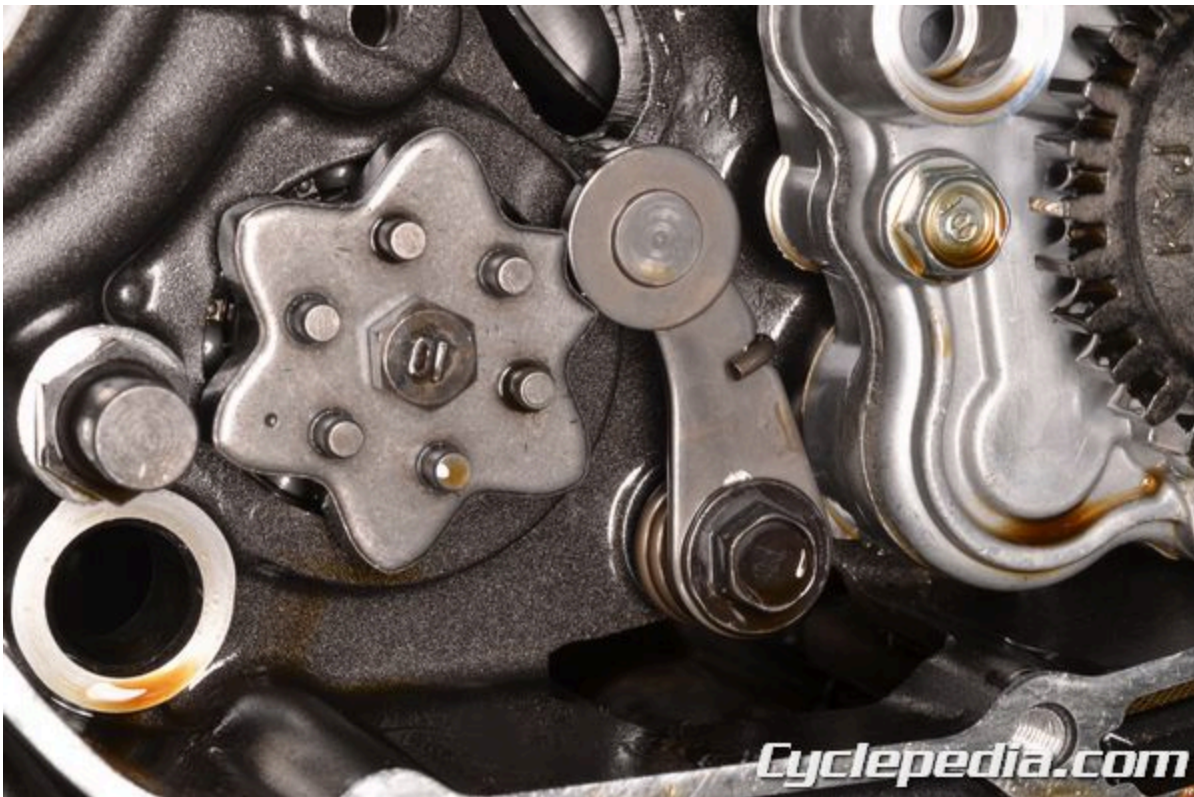


Install the shift cam dowel pins.



Hold back the stopper arm and install the stopper plate while aligning the dowel pins in the drum with the holes in the back of the plate.





Apply blue Loctite to the threads of the stopper plate bolt. Install the stopper plate bolt with a 10 mm socket and tighten to specification.

**Shift drum stopper plate bolt (use threadlock)\*: 10 N-m (1.0 kgf-m, 7.0 ft-lb)**

\*Note: Coat **6.5 mm ± 1.0 mm** of the threads with a threadlock compound, measured upward starting **2.0 mm ± 1.0 mm** from tip

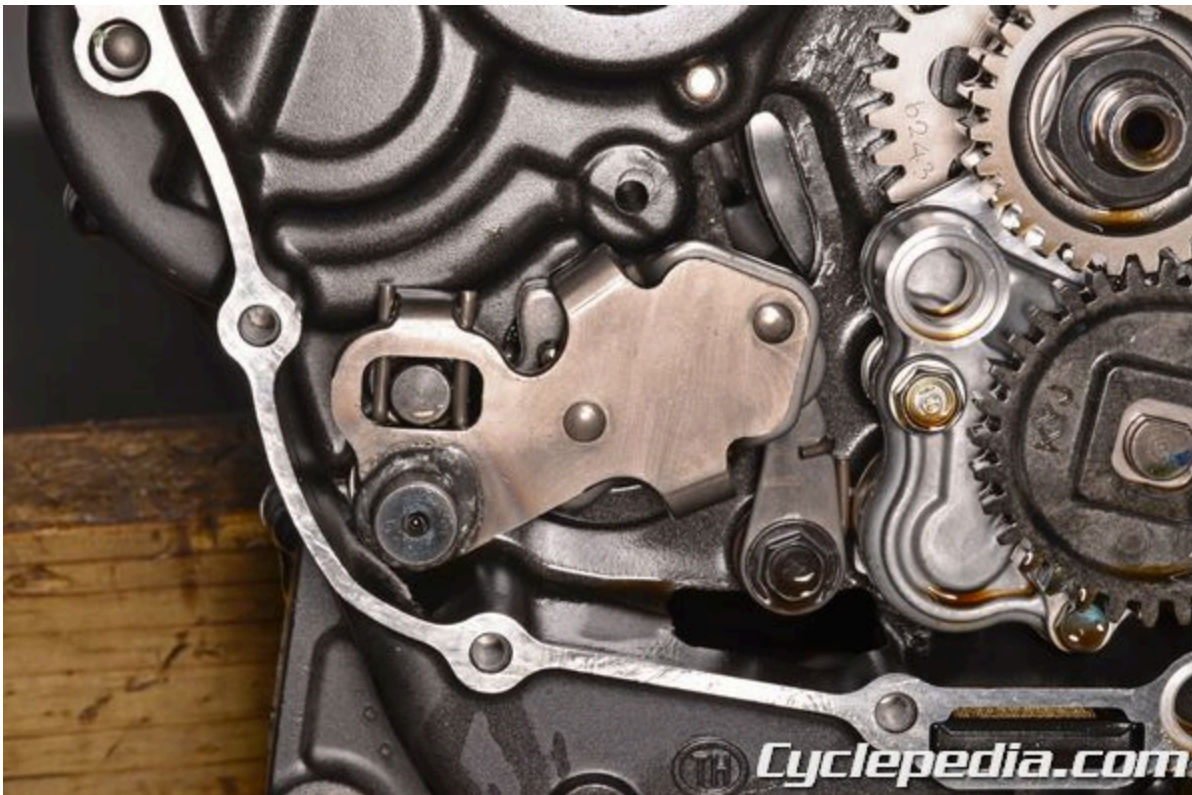




Apply grease to the lips of the new shift shaft oil seal. Install the new oil seal so that it sits **0.5 – 1.0 mm or 0.02-0.04 in.** below the surface of the crankcase.



Lubricate the shift shaft with engine oil. Install the gearshift shaft and washer carefully guiding it through the bearing and seal.



Fit the return spring into place onto each side of the spring pin. Fit the shift ratchet onto the stopper plate.

Install the shift pedal as detailed earlier in this section.

Install the clutch assembly and the right crankcase cover. See the Clutch <sup>[2]</sup> topic for more information. URLs in this post:

[1] Chain Guards: **<https://www.cyclepedia.com/manuals/online/cpp-323/external-components/chain-guards/>**

[2] Clutch: **<https://www.cyclepedia.com/manuals/online/cpp-323/engine/clutch-removal/>**

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## - Honda CRF300L Service Manual

### Primary Drive Gears

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

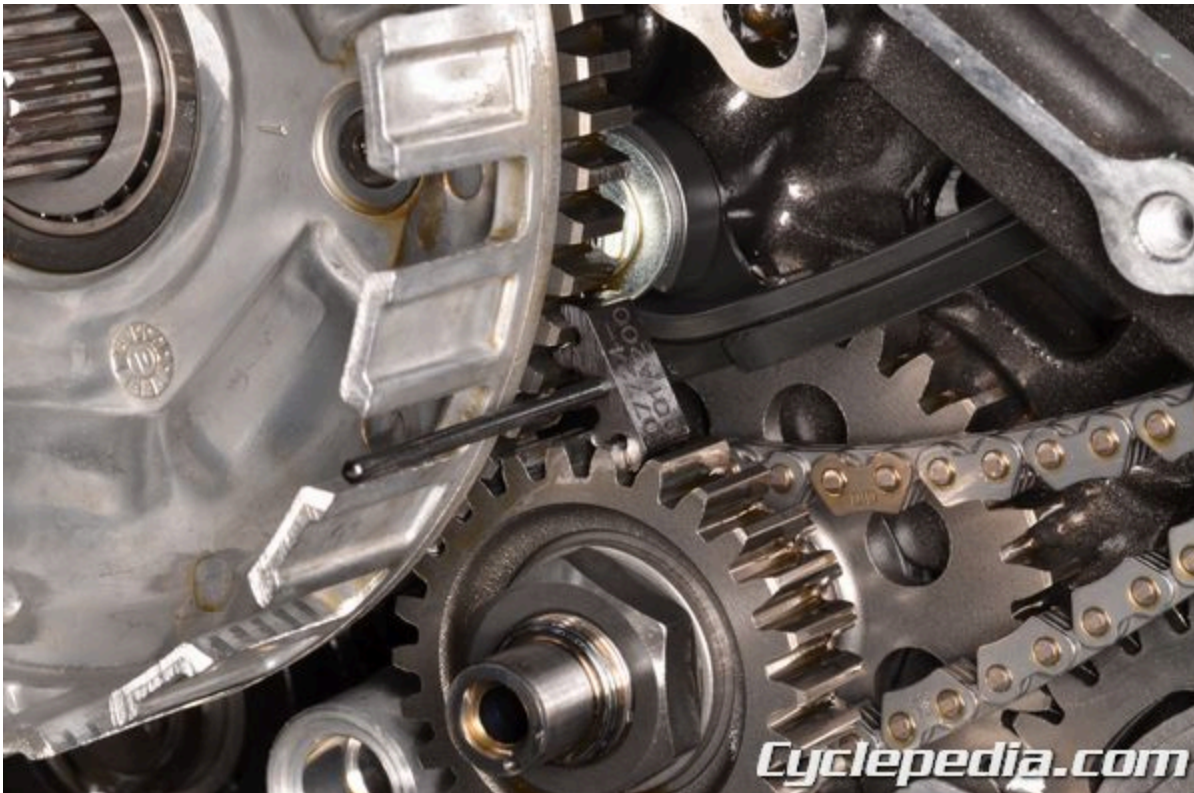
10 mm Socket  
19 mm Socket  
24 mm Socket  
Ratchet  
Torque Wrench  
Nitrile Gloves  
Safety Glasses

Note: If only the primary drive gear itself is to be removed, then start this procedure with [Clutch Removal](#) <sup>[1]</sup> and skip the other items before it in the removal list as they are only necessary if the timing chain, sprocket, and balancer gear assembly is to be removed as well (or for crankcase splitting).

Remove the following components:

[Spark Plug](#) <sup>[2]</sup>  
[Cylinder Head Cover](#) <sup>[3]</sup>  
[Camshafts](#) <sup>[4]</sup>  
[Cylinder Head](#) <sup>[5]</sup>  
[Piston and Cylinder](#) <sup>[6]</sup>  
[Clutch Removal](#) <sup>[1]</sup>  
[Oil Pump](#) <sup>[7]</sup>

## **Removal**



Temporarily install the clutch basket. See the [Clutch Installation](#) <sup>[8]</sup> topic for more information. Place the gear holder above and between the primary drive and driven gears.

**Special Tool – Gear holder, M1.5: 07724-0010200**

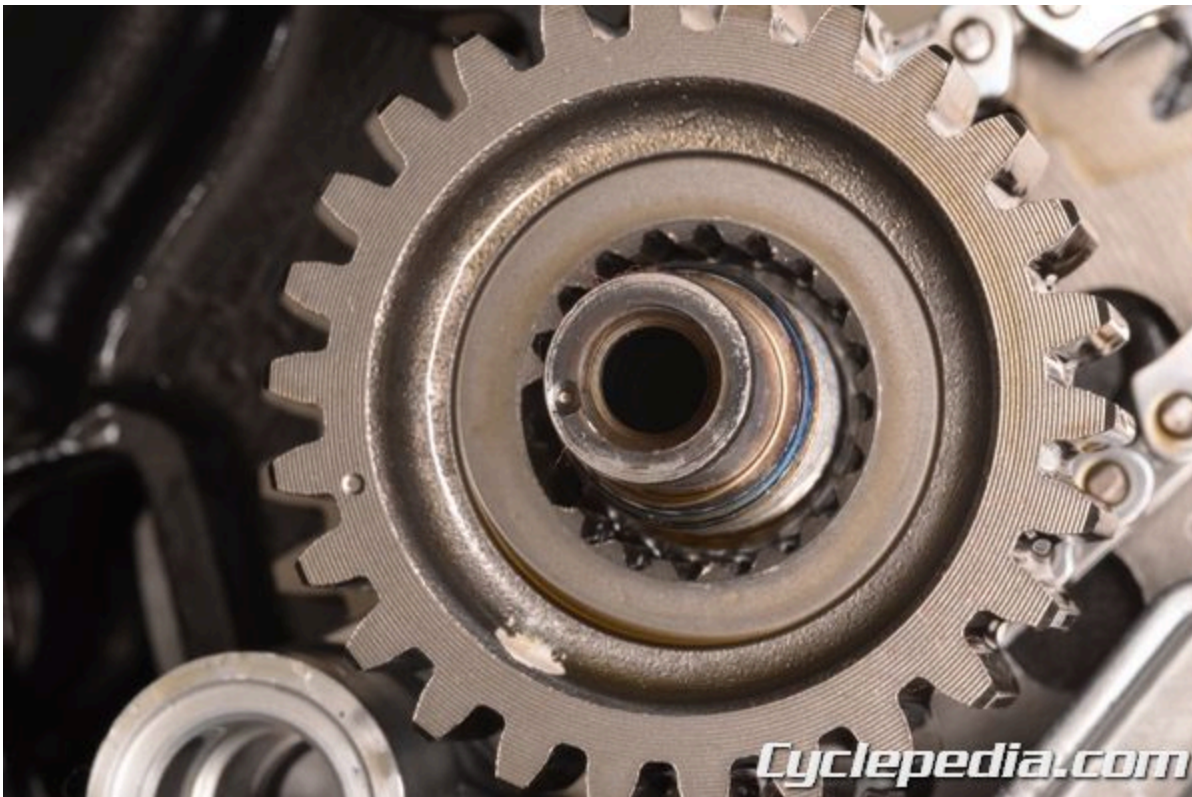


Loosen the primary drive gear nut with a 24 mm socket. Remove the primary drive gear nut.

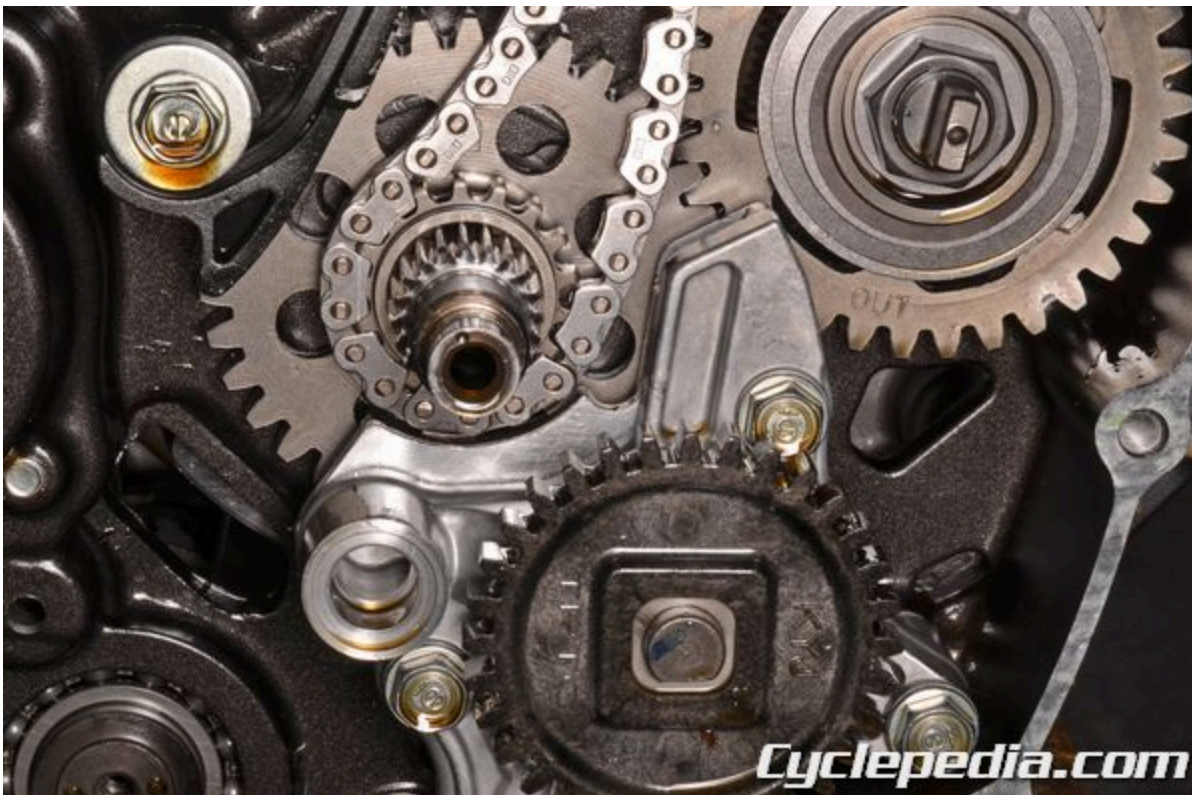


Remove the washer from the crankshaft.



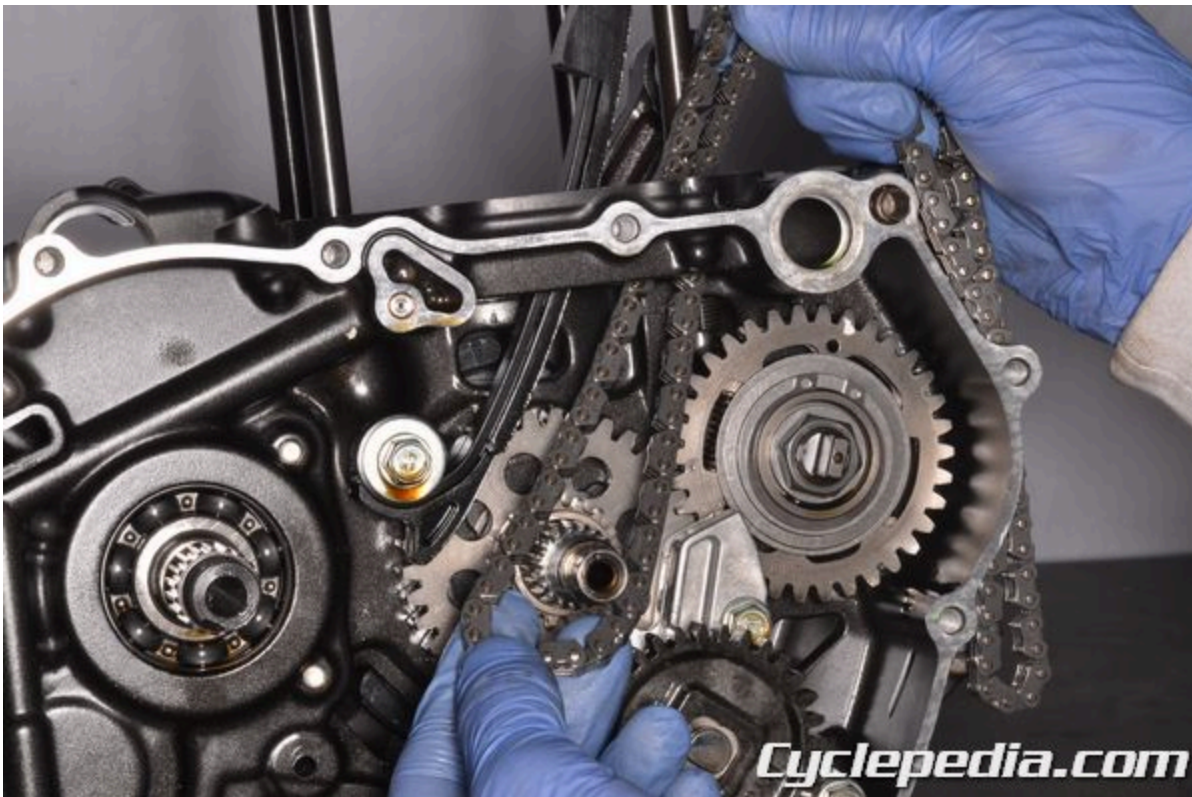


Remove the primary drive gear. Inspect the primary drive gear for wear and damage.



Free the cam chain from the timing sprocket on the crankshaft.





Remove the cam chain.



Remove the timing sprocket from the crankshaft.





Inspect the timing sprocket for wear and damage.



Loosen the rear cam chain guide bolt with a 10 mm socket.



Remove the rear cam chain guide bolt.



Inspect the cam chain guide for wear and damage.





Place the gear holder above and between the balancer drive and driven gears.

**Special Tool – Gear holder, M2.5:** 07724-0010100

Note: This version of the 300 motor uses a solid balancer drive gear so a pin can't be used to lock it in place like the earlier version shown here.



Loosen the balancer nut with a 19 mm socket. Remove the balancer nut and washer.





Remove the balancer drive and driven gears.



Remove the key from the balancer shaft.

## **Installation**





Install the key into the balancer shaft.



Oil and install the balancer drive gear so that its large gap aligns with the punch mark and fits onto the crankshaft as shown. The OUT mark on the balancer drive gear must face out.



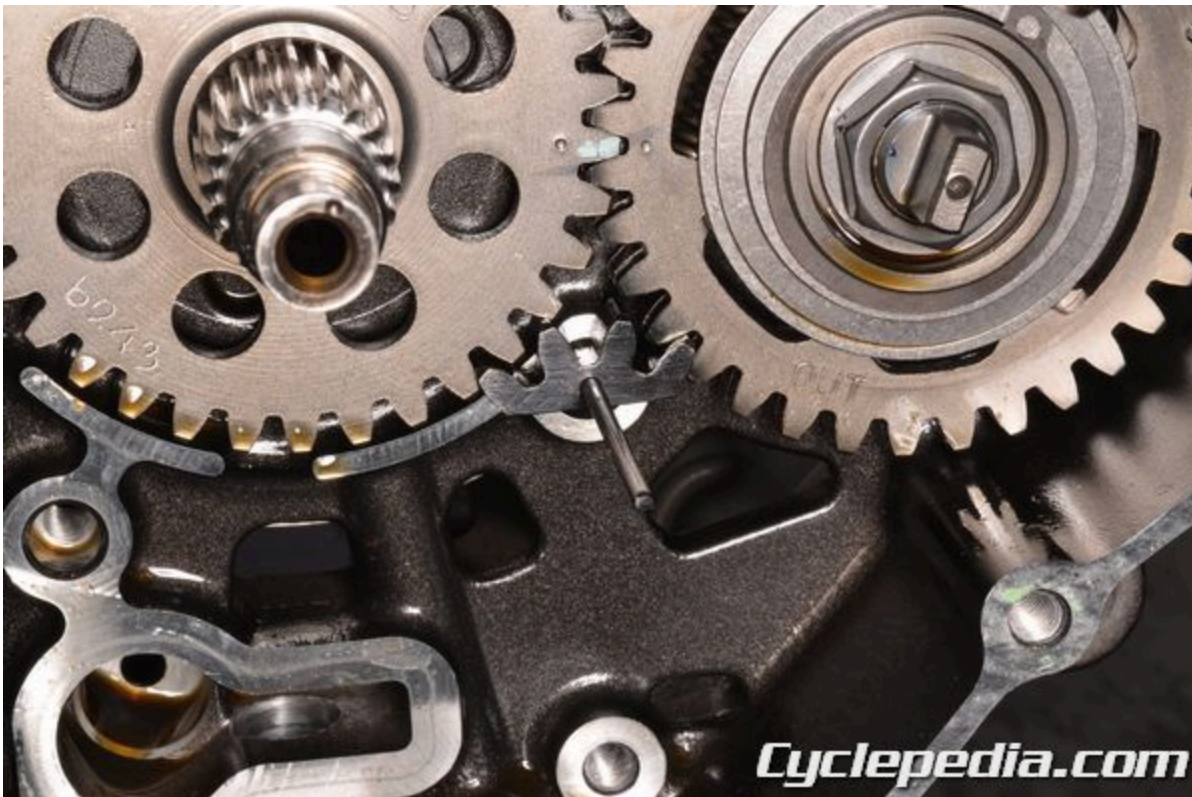


Fit the balancer driven gear into place so that its groove fits onto the key, and the balancer gear punch marks align.



Lubricate the balancer shaft nut and seating surface with engine oil. Install the balancer shaft nut and washer.





Place the gear holder below and between the balancer drive and driven gears. Apply oil to the balancer nut threads. Tighten the balancer nut to specification with a 19 mm socket. Remove the gear holder.

**Special Tool – Gear holder, M2.5:** 07724-0010100

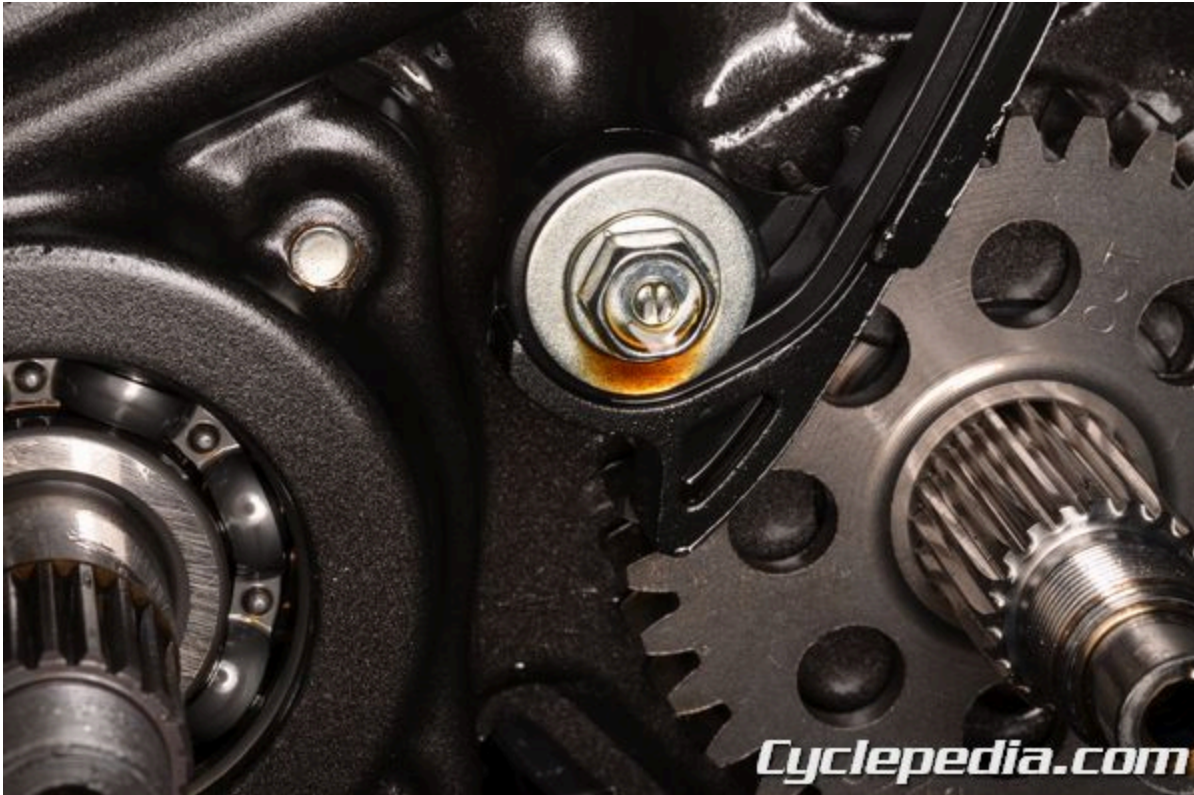
**Balancer shaft nut (oil threads):** 69 N-m (7.0 kgf-m, 51 ft-lb)



Apply blue Loctite to threads\* of the rear cam chain guide bolt. Install the rear cam chain guide and bolt.



\*Note: Coat  $6.5 \text{ mm} \pm 1.0 \text{ mm}$  of the threads with a threadlock compound, measured upward starting  $2.0 \text{ mm} \pm 1.0 \text{ mm}$  from tip



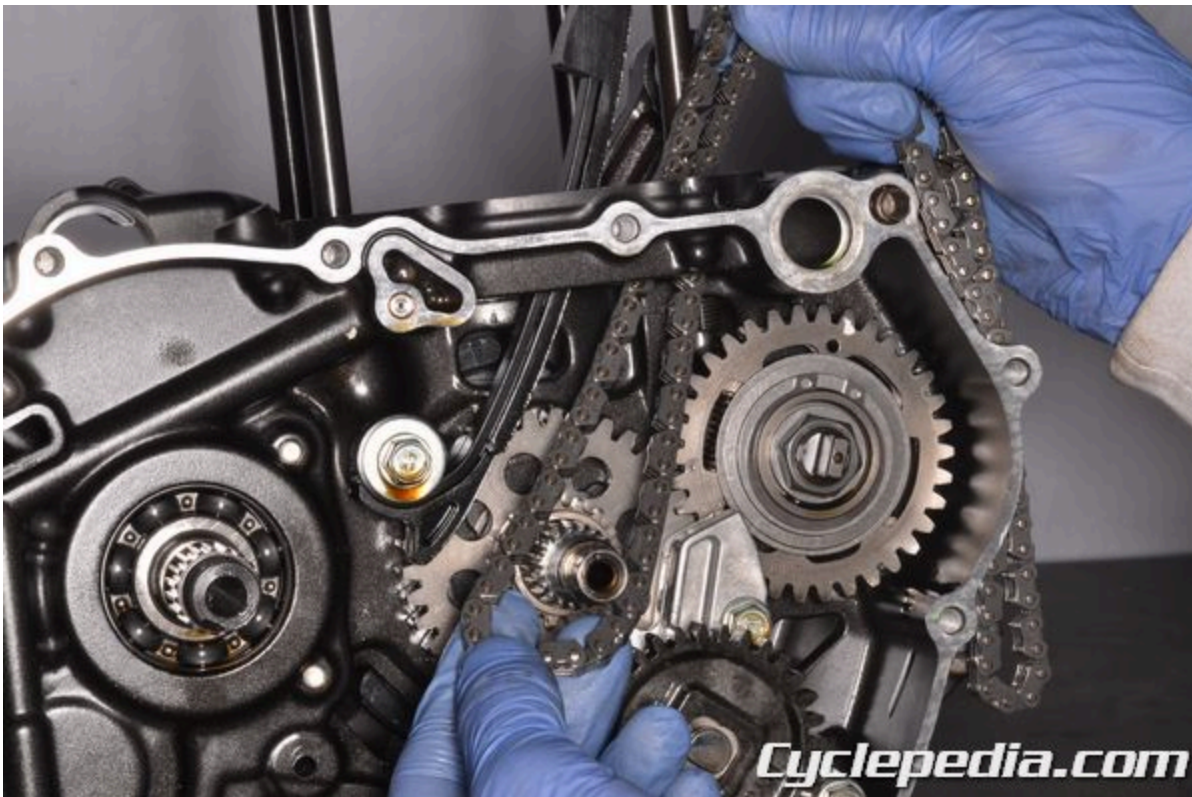
Tighten the rear cam chain guide bolt to specification with a 10 mm socket.

**Cam chain guide pivot bolt (use threadlock)\*: 10 N-m (1.0 kgf-m, 7.0 ft-lb)**

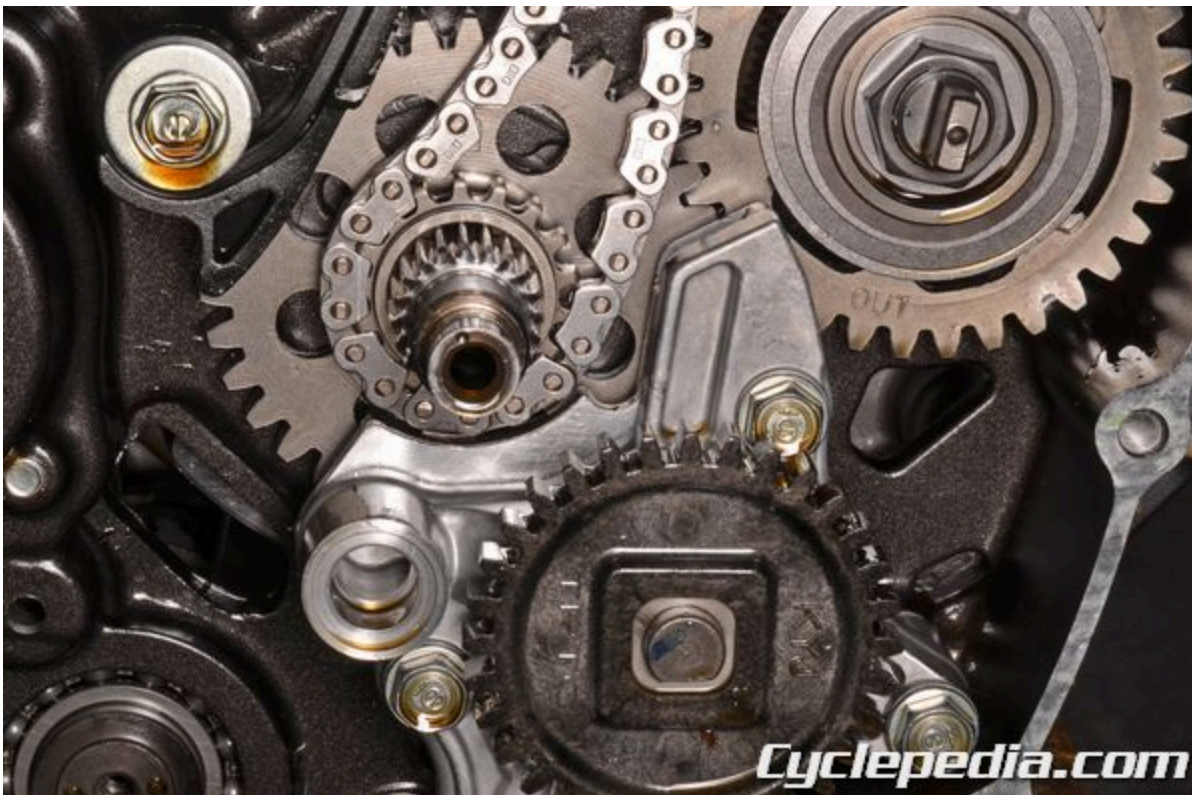


Install the timing sprocket so that its large gap aligns with the punch mark and fits onto the crankshaft as shown.



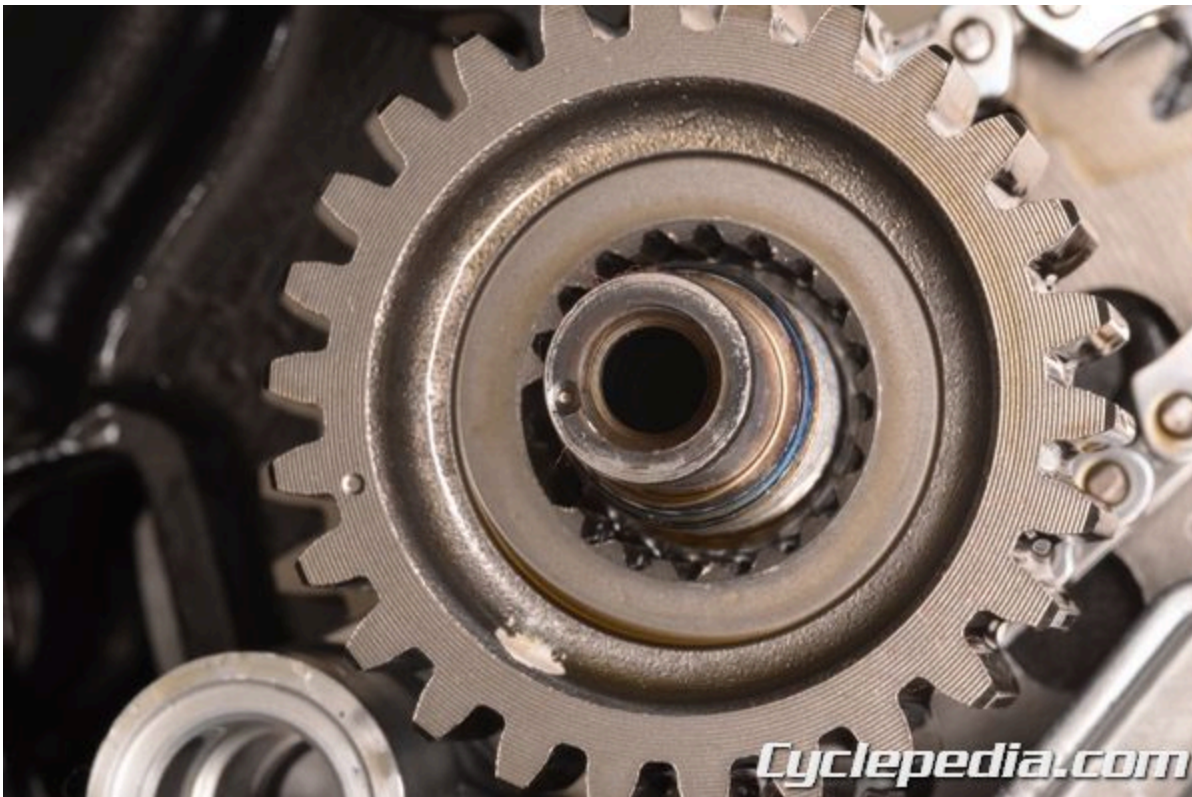


Install the cam chain. Lubricate the entire cam chain with fresh engine oil.

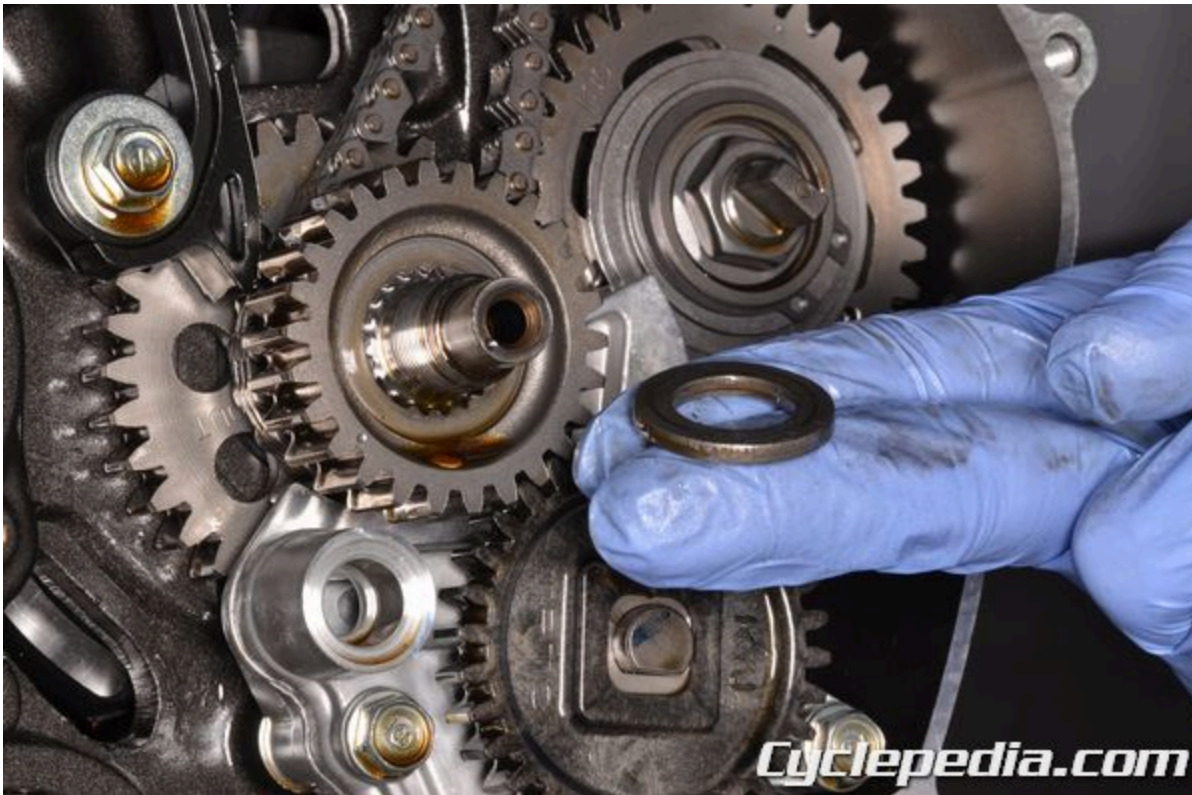


Fit the cam chain onto the timing sprocket on the crankshaft.





Install the primary drive gear so that its large gap and punch mark align with the punch mark and fits onto the crankshaft as shown. Coat the gear teeth with engine oil.

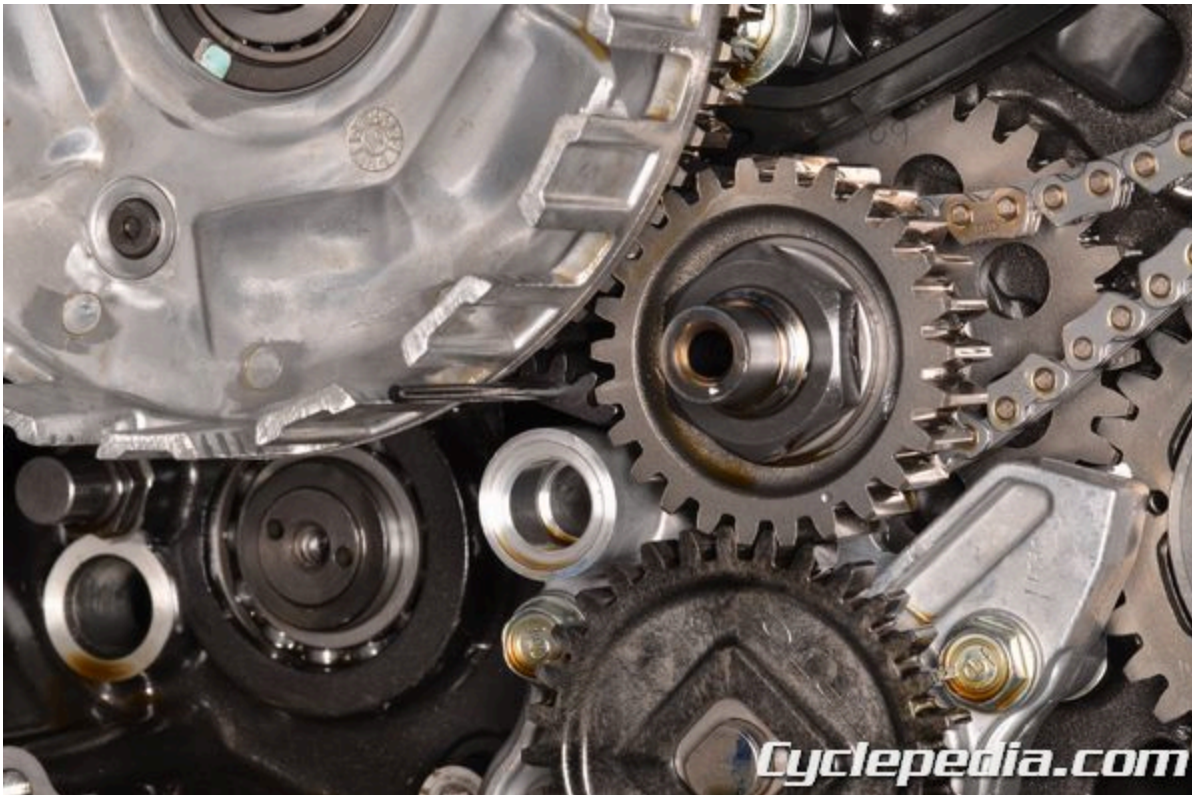


Install the washer onto the crankshaft.





Apply engine oil to the primary drive gear nut threads and seating surface. Install the primary drive gear nut.



Start Clutch Installation and position the clutch basket. See the [Clutch Installation](#) <sup>[8]</sup> topic for more information. Place the gear holder below and between the primary drive and driven gears.

**Special Tool – Gear holder, M1.5:** 07724-0010200

Apply oil to the primary drive gear nut and tighten it to specification with a 24 mm socket, then remove the gear holder.

**Primary drive gear lock nut (oil threads):** 108 N-m (11.0 kgf-m, 80 ft-lb)

Install or perform the following:

Oil Pump <sup>[7]</sup>

Clutch Installation <sup>[8]</sup>

Piston and Cylinder <sup>[6]</sup>

Cylinder Head <sup>[5]</sup>

Camshafts <sup>[4]</sup>

Cylinder Head Cover <sup>[3]</sup>

Spark Plug <sup>[2]</sup>

URLs in this post:

[1] Clutch Removal: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/clutch-removal/>

[2] Spark Plug: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/spark-plug/>

[3] Cylinder Head Cover: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/cylinder-head-cover/>

[4] Camshafts: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/camshaft-and-rocker-arms/>

[5] Cylinder Head: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/cylinder-head/>

[6] Piston and Cylinder: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/piston-and-cylinder/>

[7] Oil Pump: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/oil-pump/>

[8] Clutch Installation: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/clutch-installation/>

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## - Honda CRF300L Service Manual

### Oil Pump

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

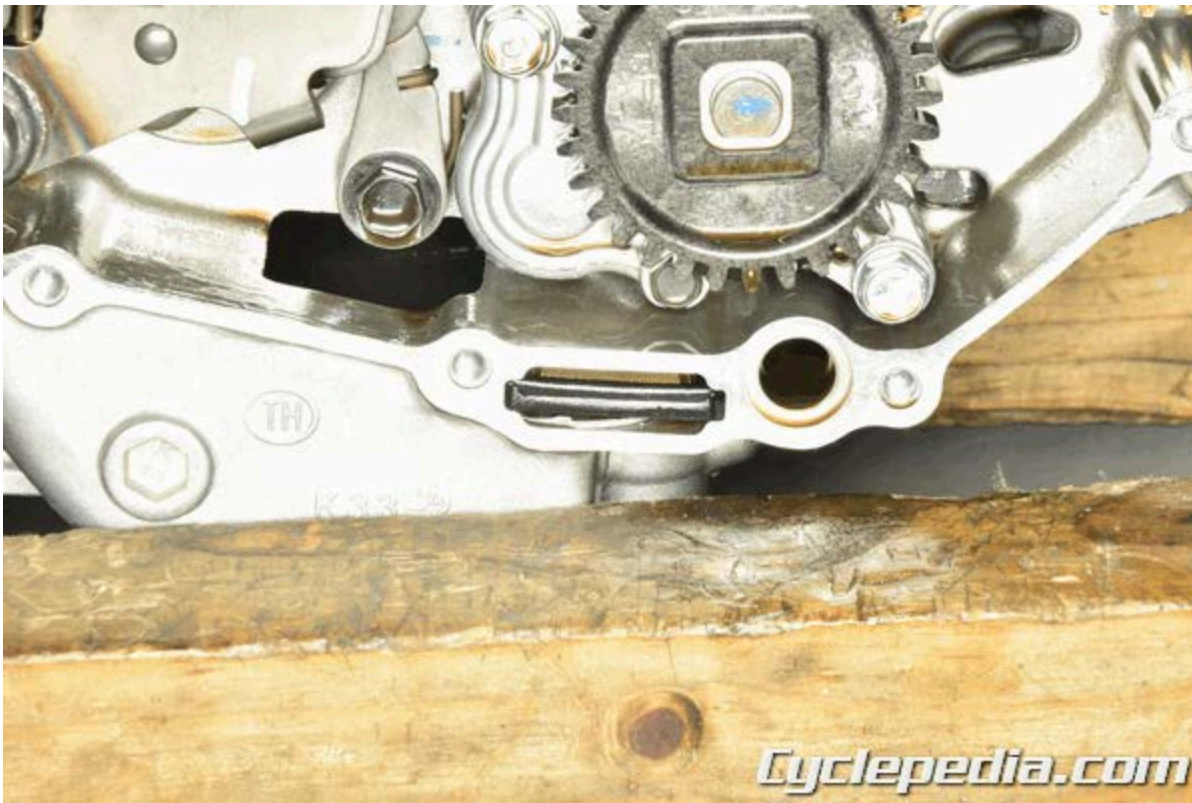
#### Suggested Tools and Supplies

8 mm Socket  
10 mm Socket  
Ratchet  
Nitrile Gloves  
Safety Glasses

## Removal



Remove the clutch cover. See the [Clutch Removal](#) <sup>[1]</sup> topic for more information.

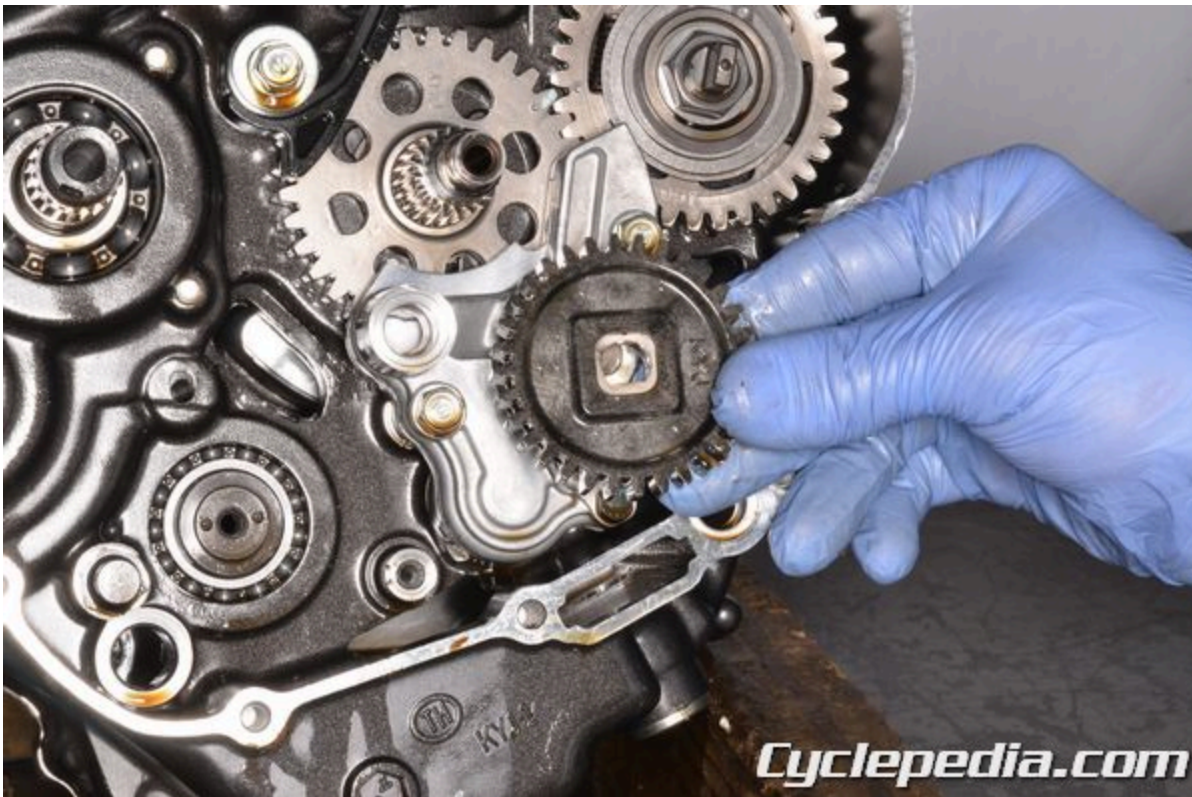


Note the position of the oil strainer screen before removal. Remove the screen and inspect it for debris or damage. Clean the screen with a high flash point solvent and blow dry with compressed air. If the screen or rubber is damaged in any way replace the screen.

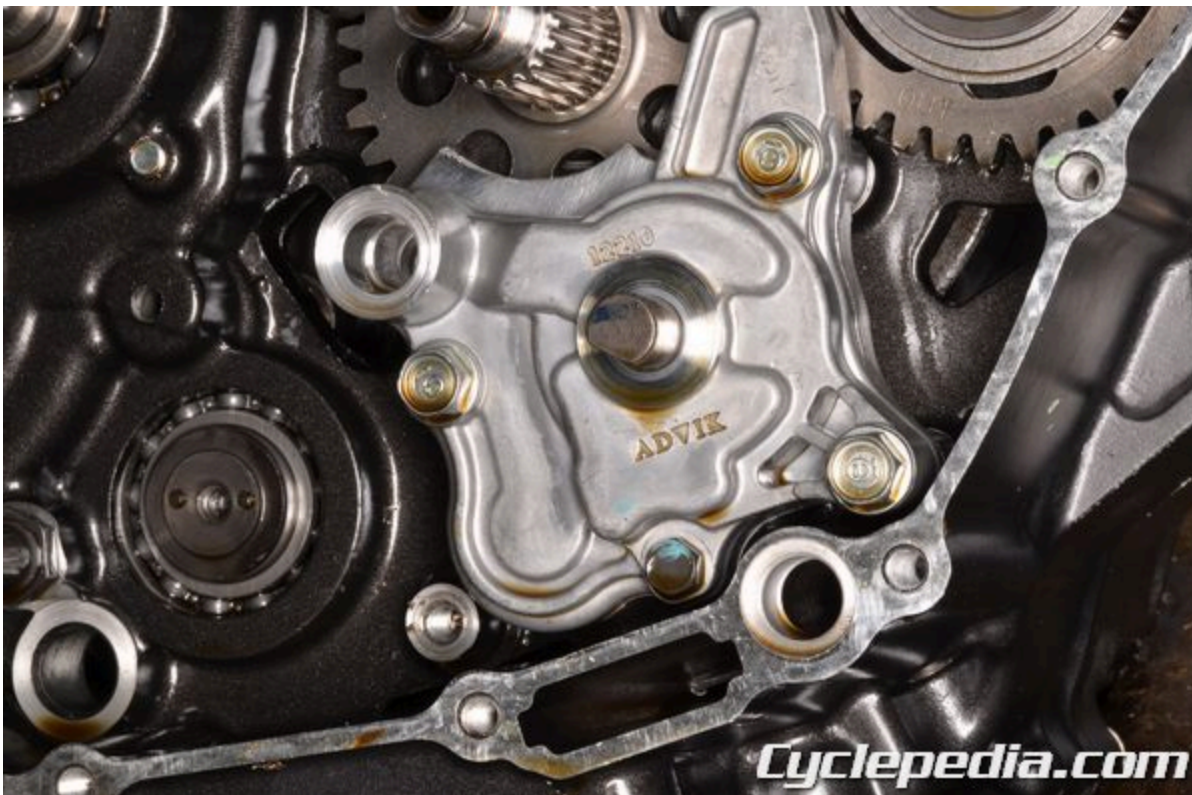


Install the oil strainer screen thin side first and with the flange facing up.





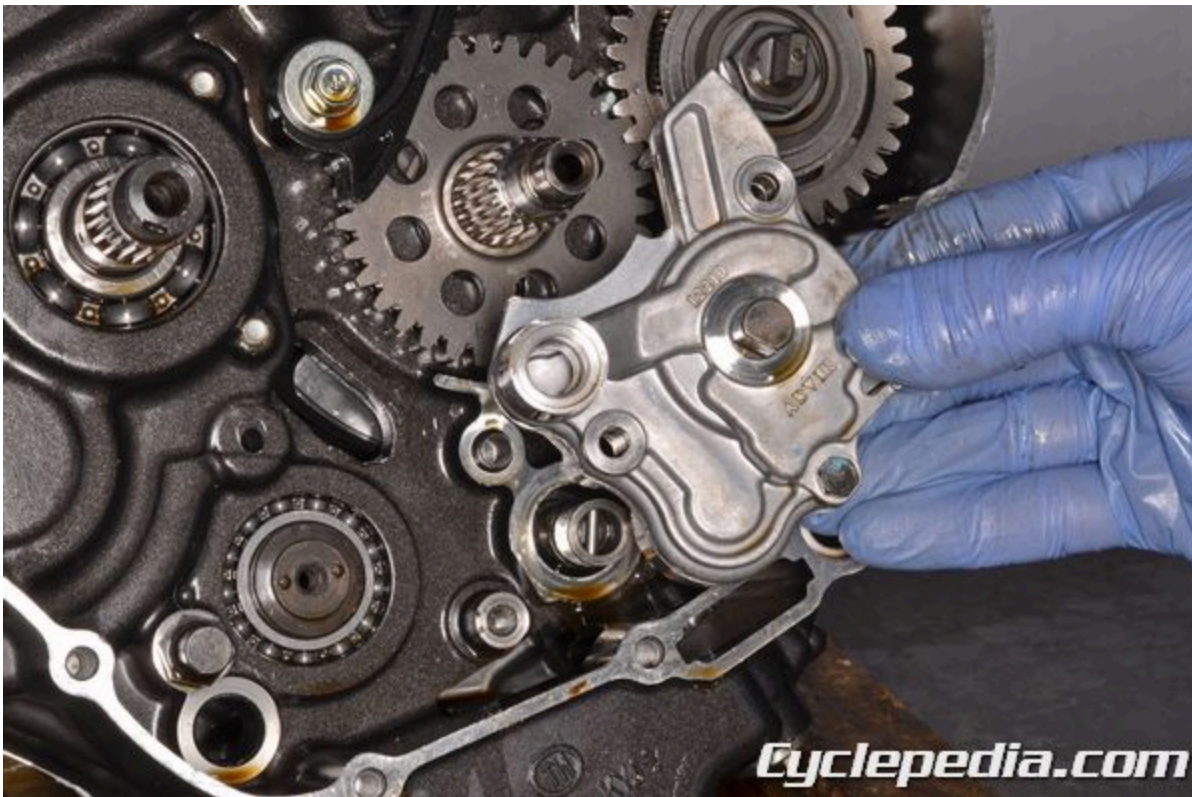
Remove the oil pump driven gear.



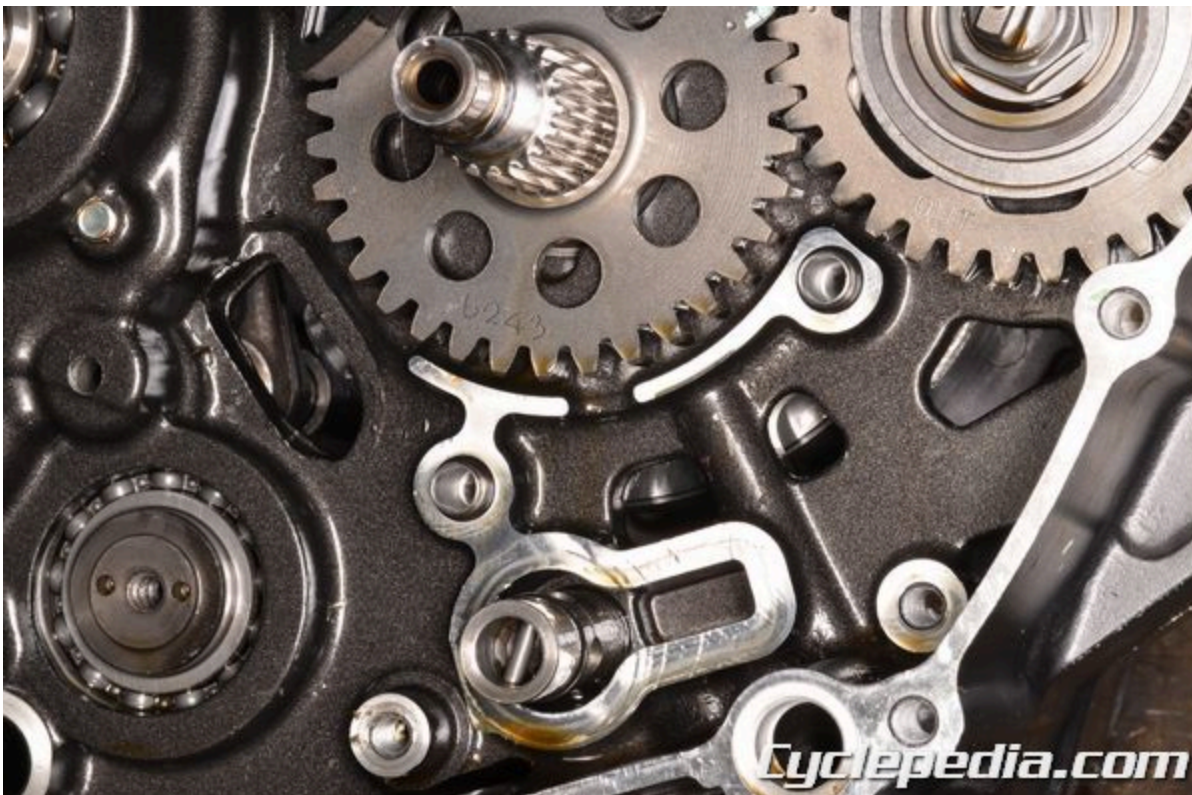
Remove the three oil pump mounting bolts with a 10 mm socket.

Note: If the pump is going to be disassembled after remove, loosen the one oil pump housing bolt with an 8 mm socket.



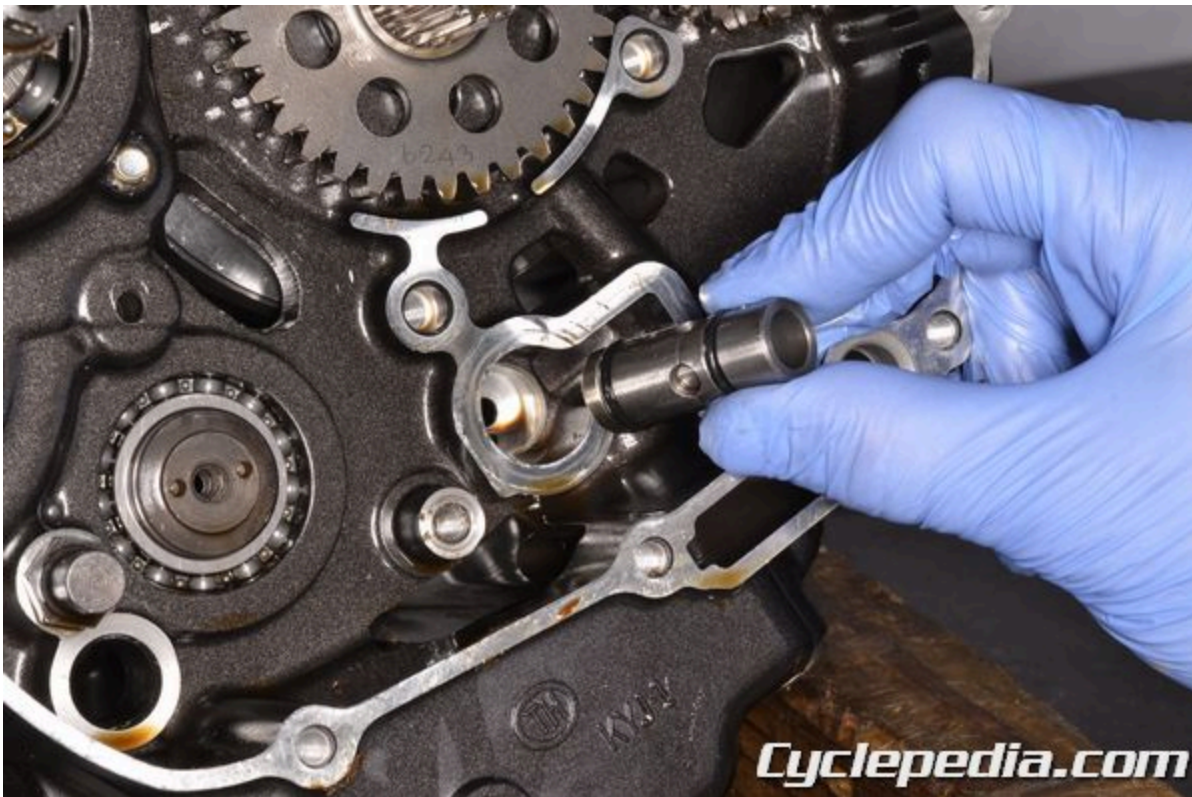


Remove the oil pump assembly releasing the pump body from the pressure relief valve.



Remove the two dowel pins.





Remove the oil pressure relief valve, noting the orientation (which side faces outward). Remove and discard the old O-rings.



Remove the O-ring from the pump body.



Separate the oil pump assembly, keep track of the two dowel pins.



Remove the oil pump shaft and inner rotor.





Remove the oil pump pin and inner rotor from the shaft.



Remove the washer.



Remove the outer rotor.

## Inspection



Inspect the oil pump shaft and drive gear teeth for wear and replace if needed.





Push on the piston of the oil pressure relief valve and check that it springs back and moves freely. Replace the pressure relief valve assembly if any abnormalities are found.



Remove the snap ring to disassemble the pressure relief valve.



Inspect the parts for abnormal wear, replace the pump as an assembly. Install the snap ring with the sharp edge facing the thrust load and be sure its fully seated in the groove.



Use a feeler gauge to measure the inner rotor tip clearance.

**Tip clearance:** 0.15 mm (0.006 in) standard, 0.20 (0.008) limit

## Installation

Apply engine oil to the rotors, shaft, and housing where the rotors ride.





Install the outer rotor.



Install the washer.



Install the shaft pin into the shaft and the inner rotor on the shaft so the pin fits into the groove.



Install the shaft and rotor into the housing.





Install the two dowel pins if removed.



Put the two pump halves together and loosely thread the pump housing bolt to hold them in place.



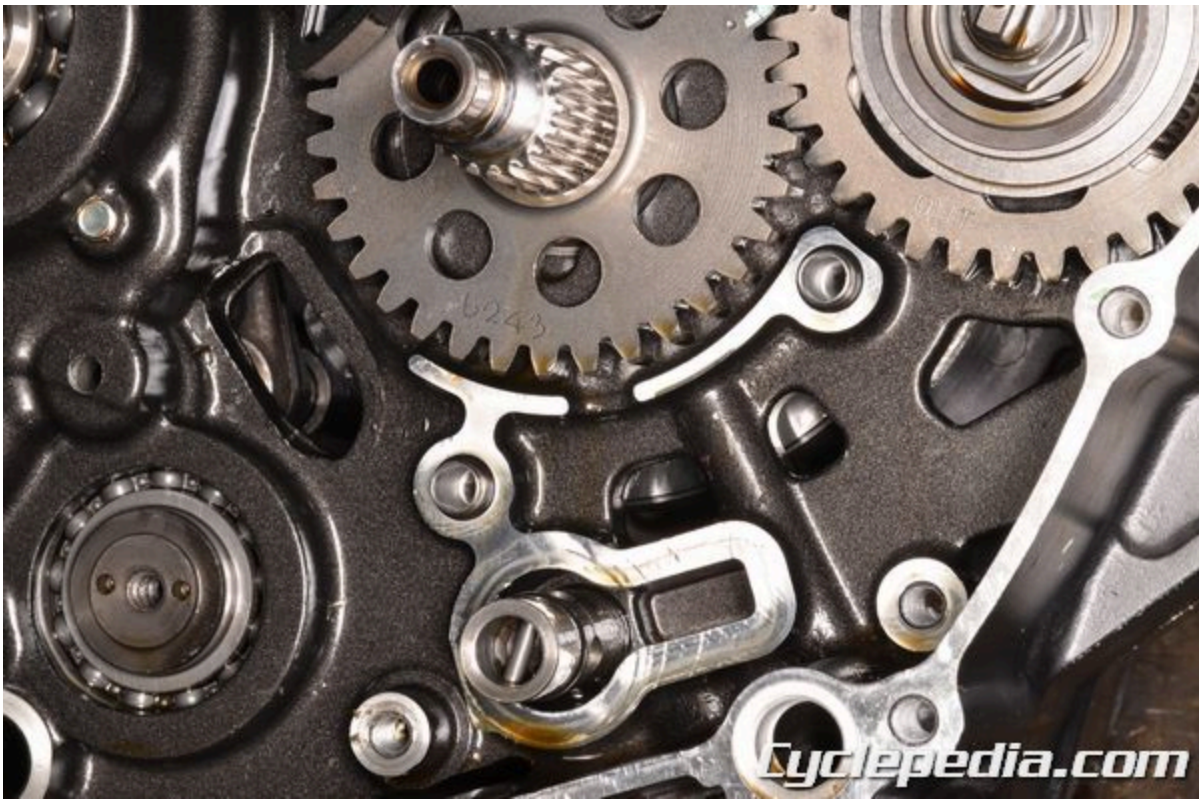


Apply a light coating of engine oil and install a new o-ring.



Install the oil pressure relief valve with new O-rings, coat the O-rings in engine oil. Make sure the valve is oriented facing the same way as noted during removal and shown here.



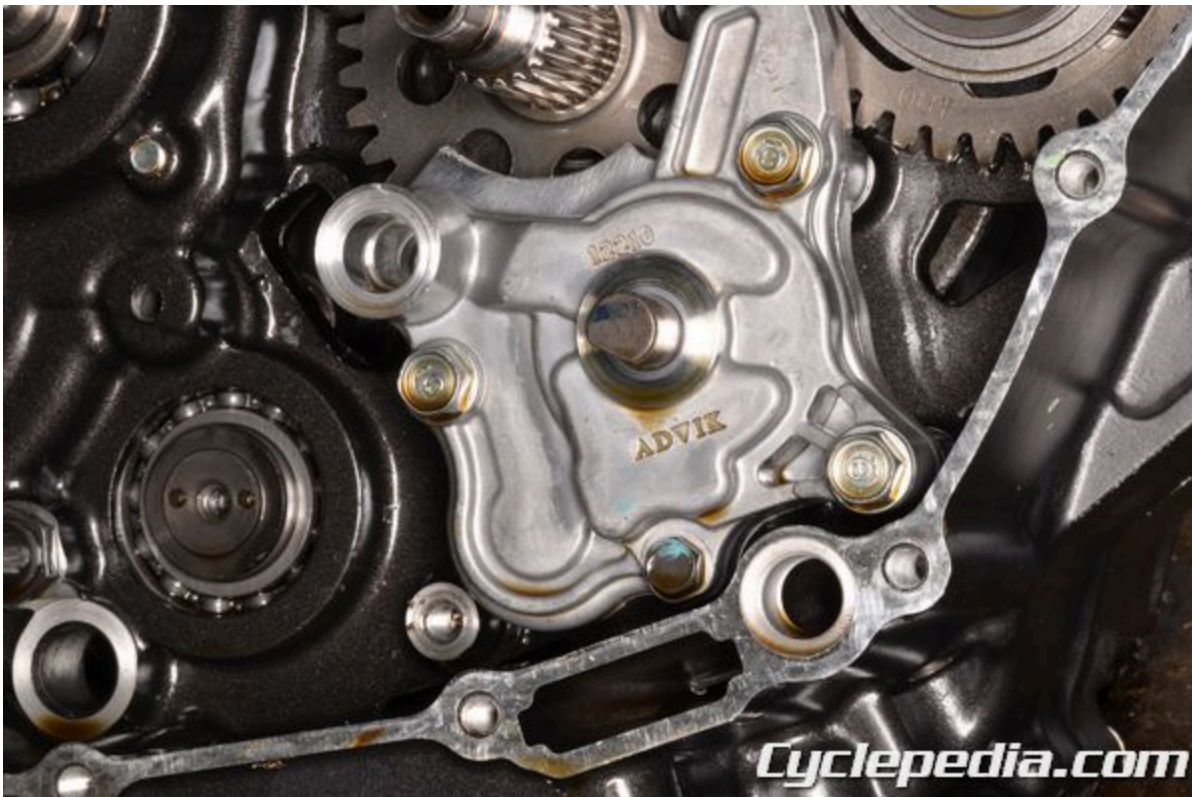


Install the dowel pins.

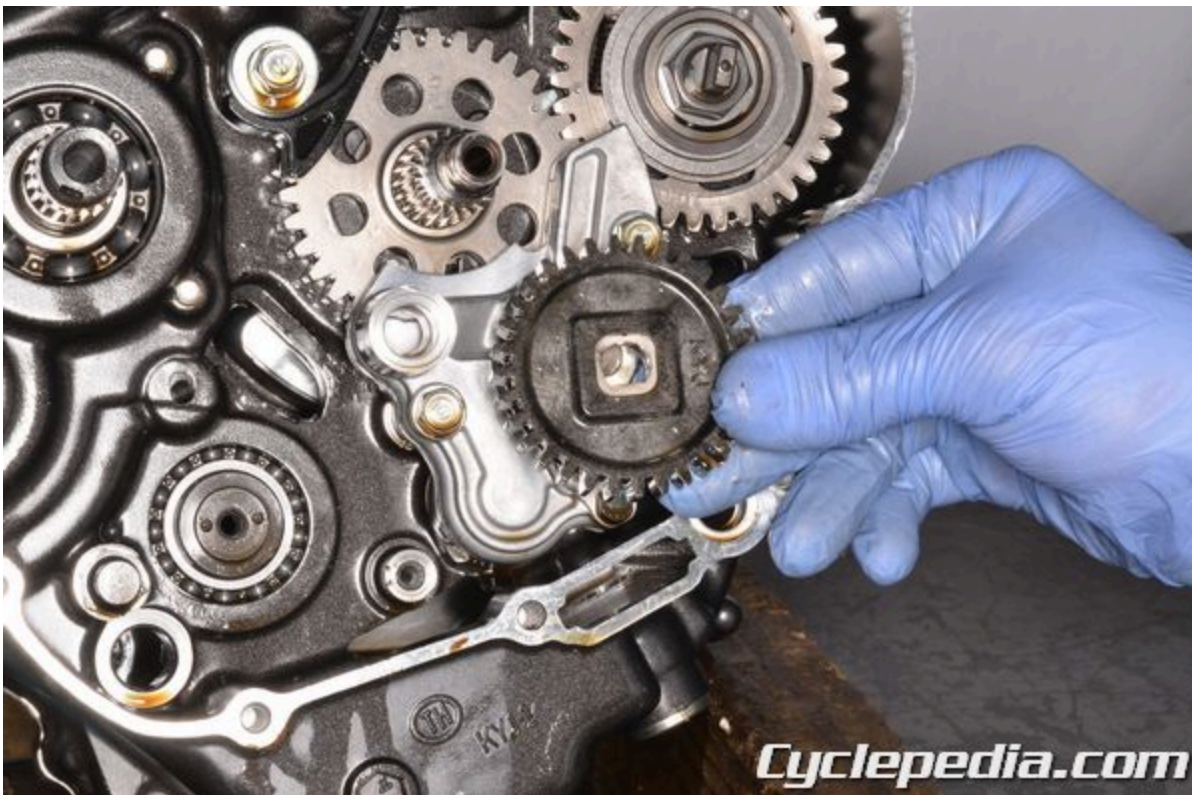


Install the oil pump while aligning the pump with the hole in the pressure relief valve.





Tighten the three oil pump bolts and one oil pump housing bolt securely.



Oil and install the oil pump driven gear, the flat spot must align with the flat spot on the shaft.

Install the right crankcase cover. See the [Clutch Installation](#) <sup>[2]</sup> topic for more information. URLs in this post:

[1] Clutch Removal: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/clutch-removal/>



[2] Clutch Installation: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/clutch-installation/>

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## - Honda CRF300L Service Manual

### Left Side Engine Components

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### Suggested Tools and Supplies

5 mm Hex Driver  
6 mm Hex Driver  
8 mm Socket  
17 mm Socket  
Ratchet  
Torque Wrench  
Nitrile Gloves  
Safety Glasses

### Left Crankcase Cover Removal

Remove the following:

Seat <sup>[1]</sup>

Bodywork <sup>[2]</sup> (left fuel tank cover for access to the wiring and, on Rally models, the front under guard and rear under cowl)

Engine Oil <sup>[3]</sup>

Engine Sprocket <sup>[4]</sup> (cover)

Gearshift <sup>[5]</sup> (shift pedal)

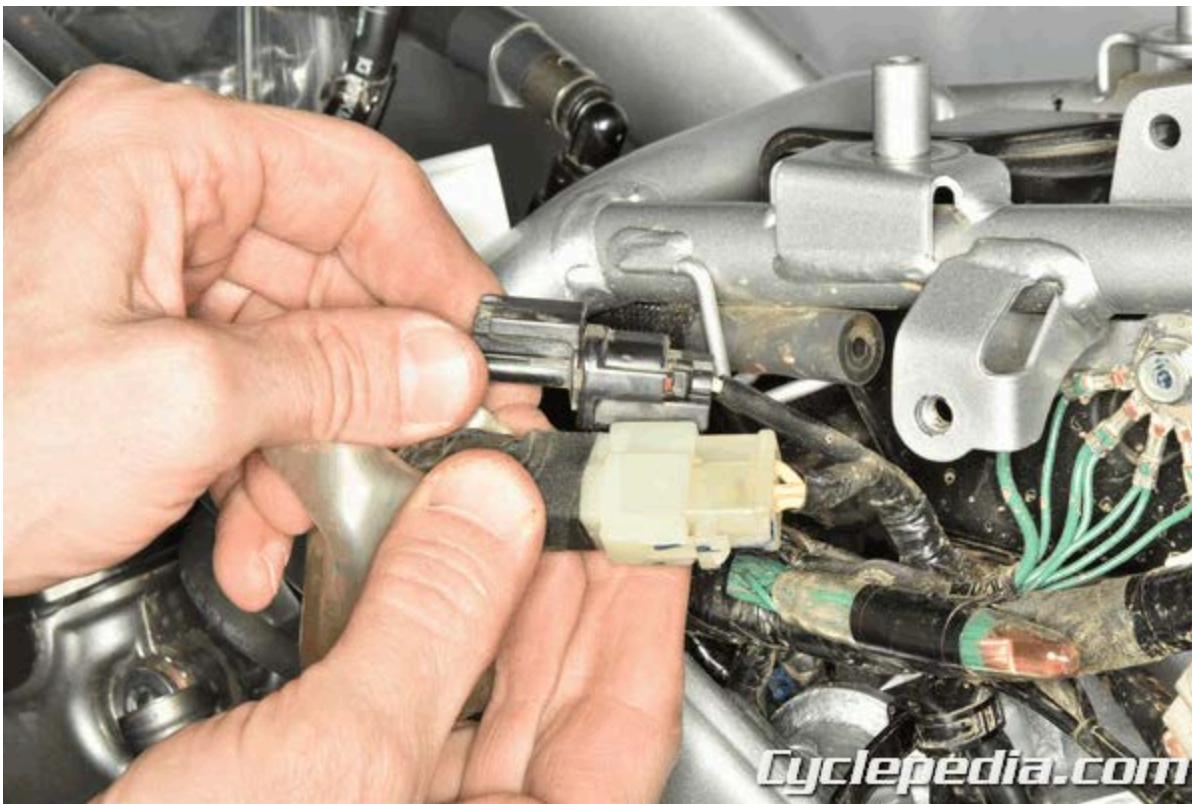


Locate the stator wiring in a opaque rubber boot along the left frame rail as shown.





Pull the rubber boot and harness out from the frame.



Remove the white alternator stator coil connector with the Yellow wires and the black CKP sensor connector.



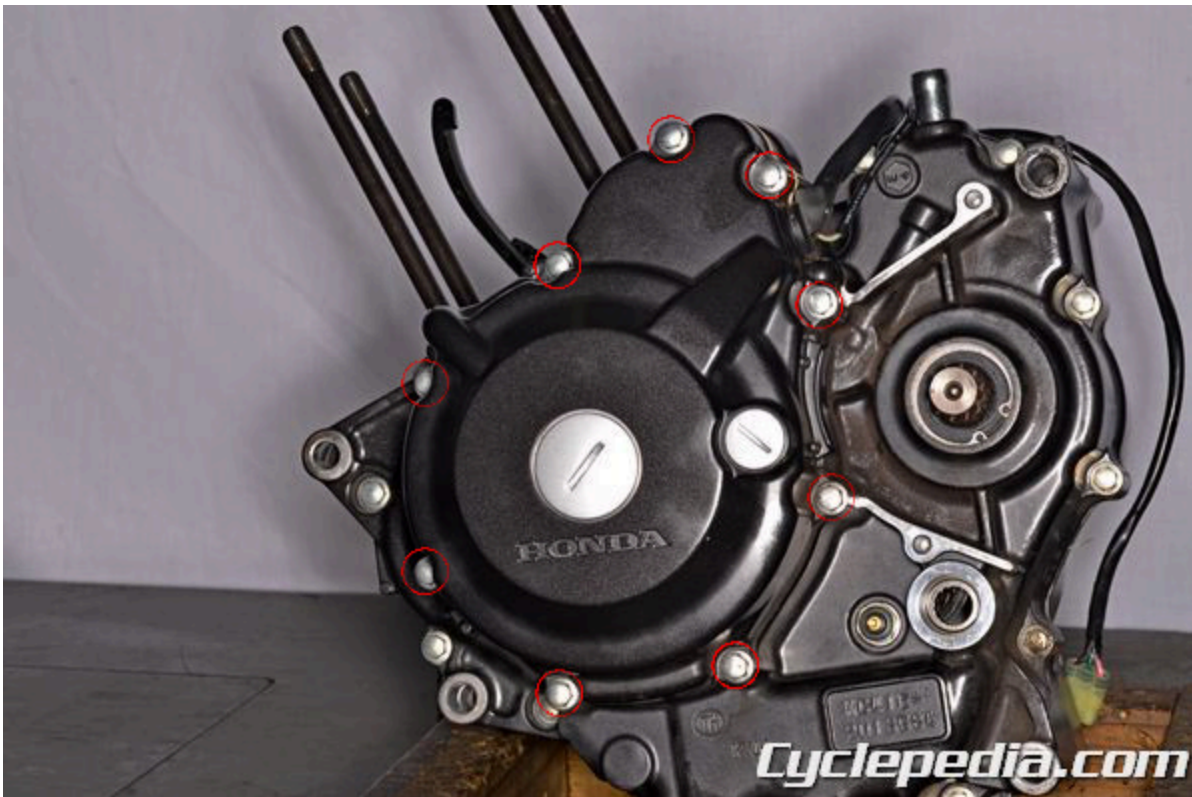


Unplug the alternator stator coil connector.

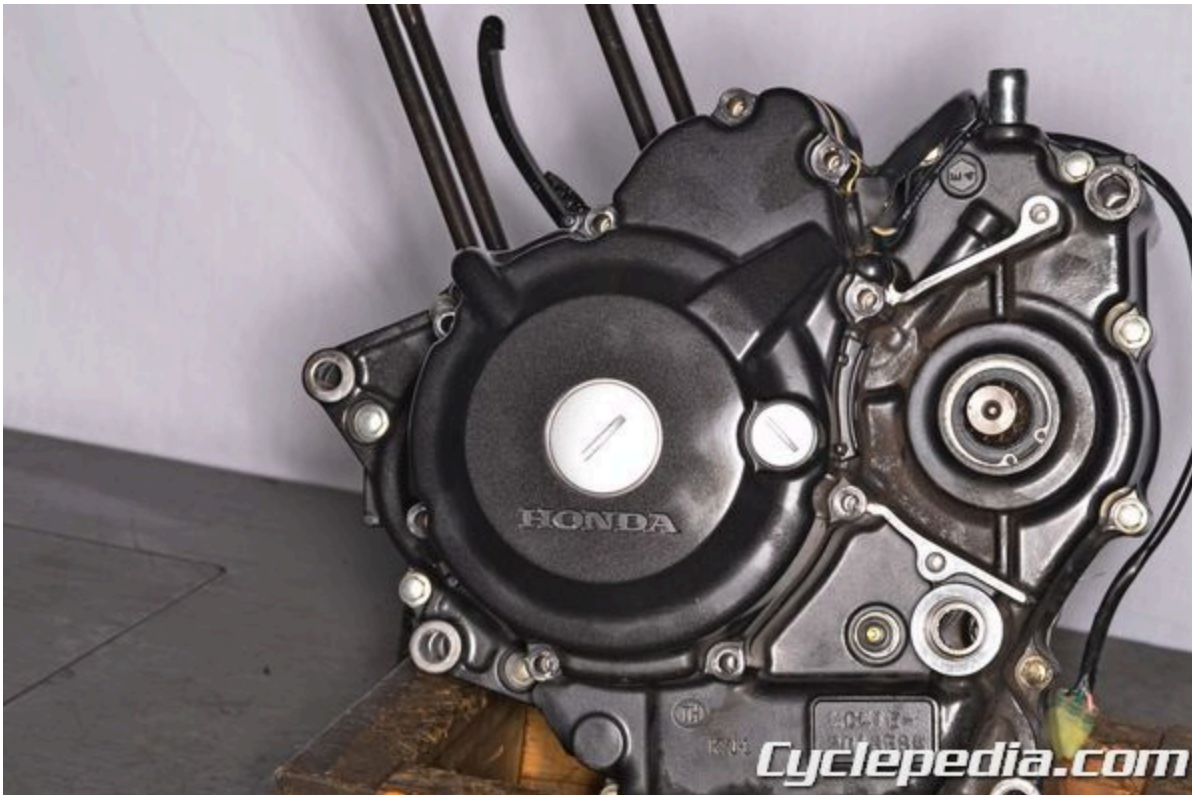


Unplug the CKP sensor connector. Trace the harness down to the left crankcase cover and free it from any guides.





Loosen the left crankcase cover bolts evenly using multiple passes of a crisscross pattern with an 8 mm socket.

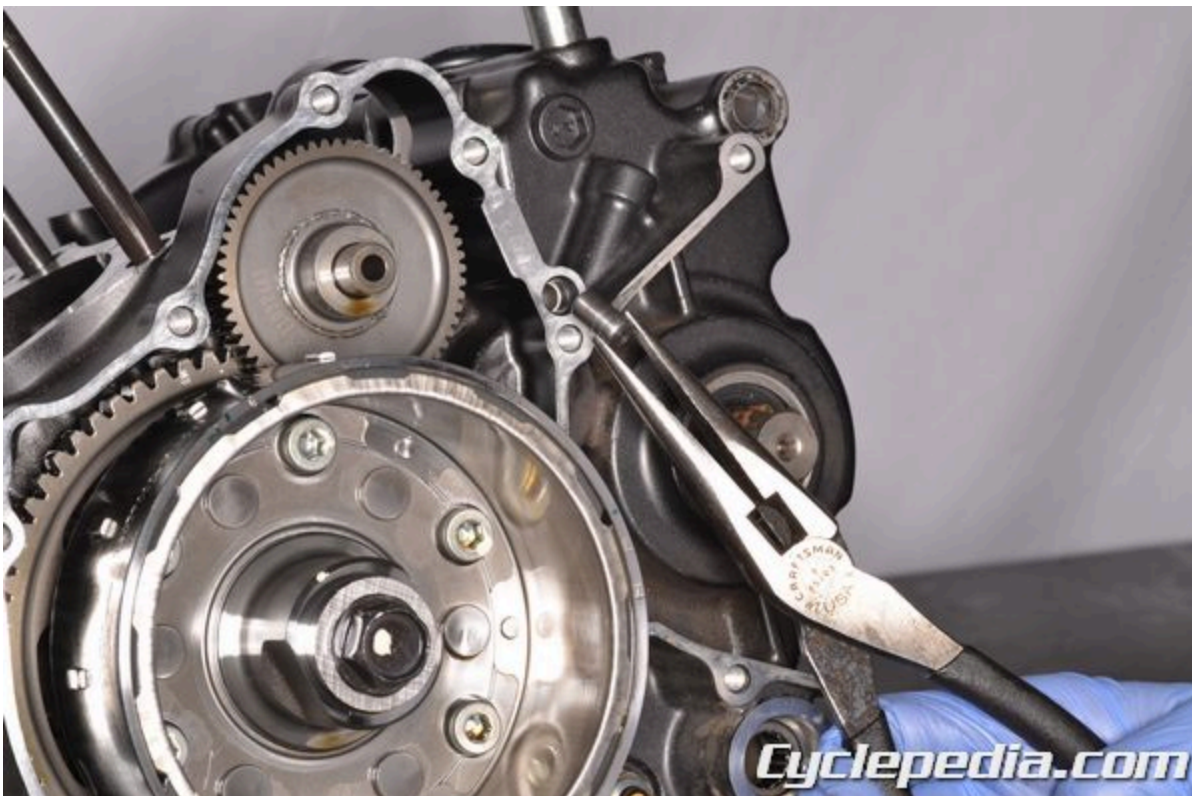


Remove the left crankcase cover bolts.



Use the pry points to carefully remove the left crankcase cover from the crankcases.

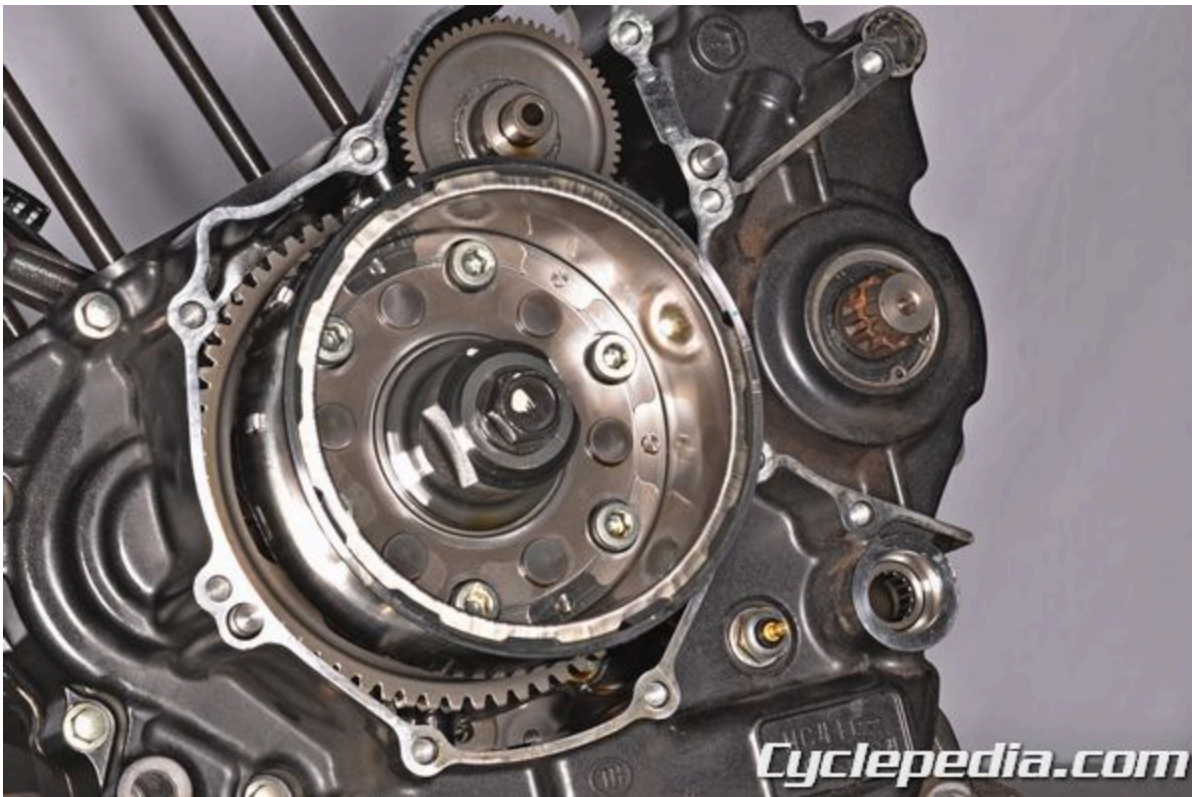
**CAUTION:** The stator mounted to the left crankcase cover is magnetically attracted to the flywheel so use caution not to catch/pinch any figures when removing or installing the cover.



Remove the old gasket and dowel pins, then carefully clean the gasket mating surfaces.

## Installation



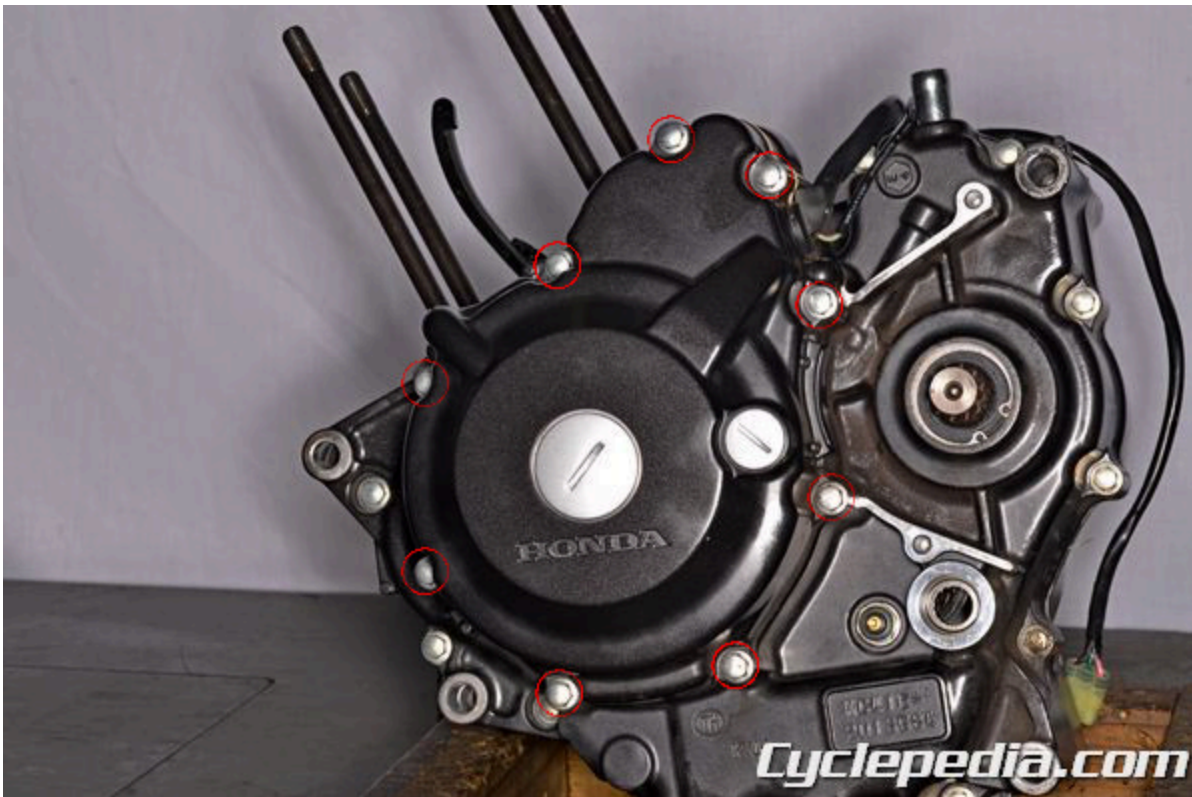


Install the dowel pins and a new gasket.



Fit the left crankcase cover into place. Again the stator is magnetically attracted to the flywheel, so be careful not to pinch any fingers when aligning and seating the cover.





Install the left crankcase cover bolts and tighten them evenly using multiple passes of a crisscross pattern with an 8 mm socket.



Route the alternator wiring up through the guide along the frame to the harness connectors. Plug in the stator alternator and CKP sensor wiring connectors.





Place the connectors in the protective boot and tuck it into the frame as shown.

Install the following:

Gearshift <sup>[5]</sup> (shift pedal)

Engine Sprocket <sup>[4]</sup> (cover)

Engine Oil <sup>[3]</sup>

Bodywork <sup>[2]</sup> (left fuel tank cover and, on Rally models, the rear under cowl and front under guard)

Seat <sup>[1]</sup>

## **Stator Assembly**



The stator assembly is bolted inside the side cover. See the [Charging System](#) <sup>[6]</sup> topic for information about testing the stator and CKP (crankshaft position) sensor. The stator assembly is only available as one unit. Remove the five screws with a 5 mm hex driver to remove the stator assembly. Replace the stator assembly and tighten the screws to specification. Apply blue Loctite to the threads of the crank position sensor mounting bolts. Apply silicone sealant (Three Bond 1207B, 1215 or equivalent) to the semicircular area of the rubber grommet where it fits into the left crankcase cover.

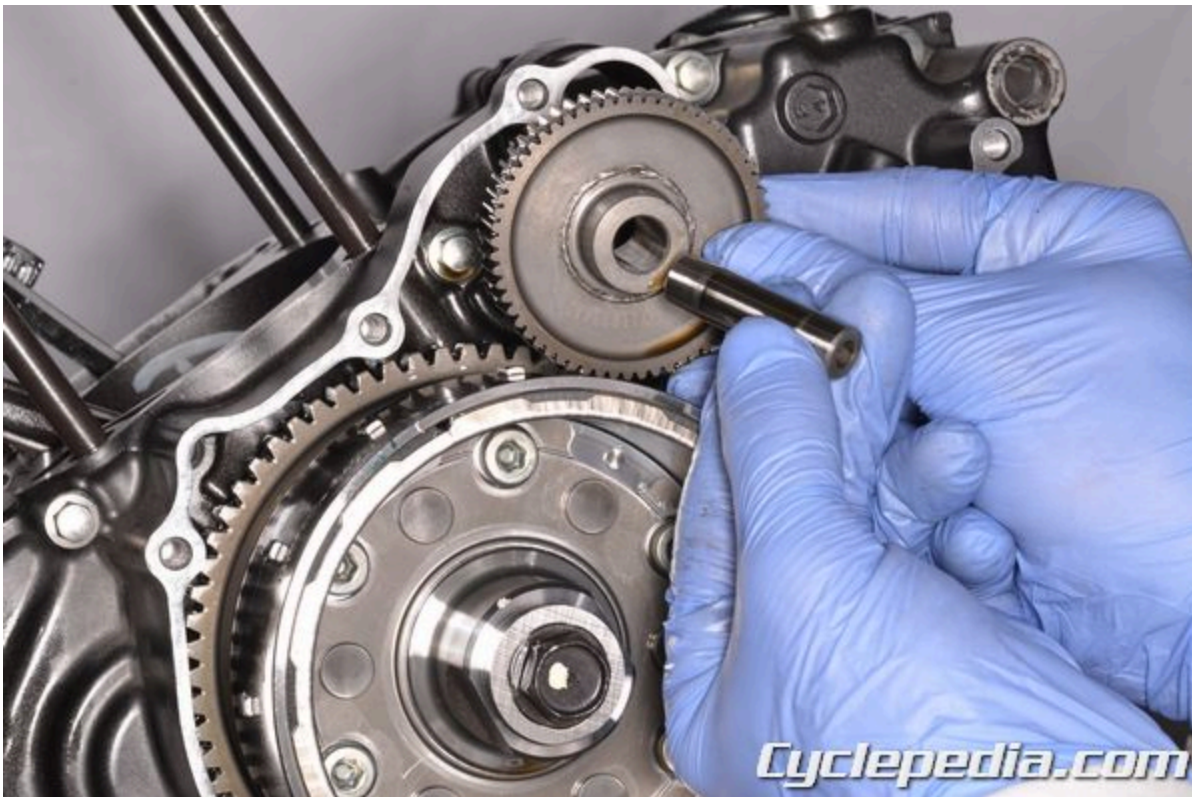
**Stator mounting socket bolt:** 10 N-m (1.0 kgf-m, 7.0 ft-lb)

**CKP sensor mounting socket bolt (use threadlock)\*:** 10 N-m (1.0 kgf-m, 7.0 ft-lb)

\*Note: Coat  $6.5 \text{ mm} \pm 1.0 \text{ mm}$  of the threads with a threadlock compound, measured upward starting  $2.0 \text{ mm} \pm 1.0 \text{ mm}$  from tip

## Generator Rotor Removal



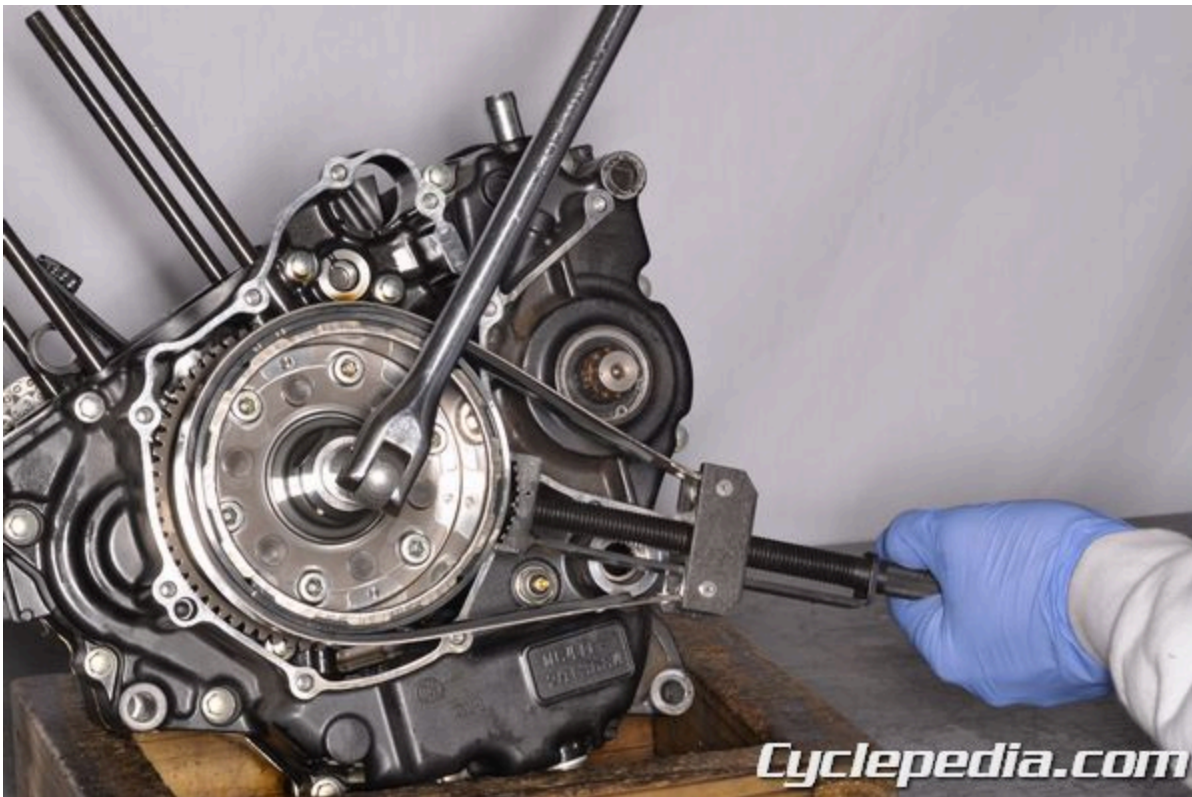


Remove the starter reduction gear and shaft.



Inspect the starter reduction gear and shaft for wear and damage.





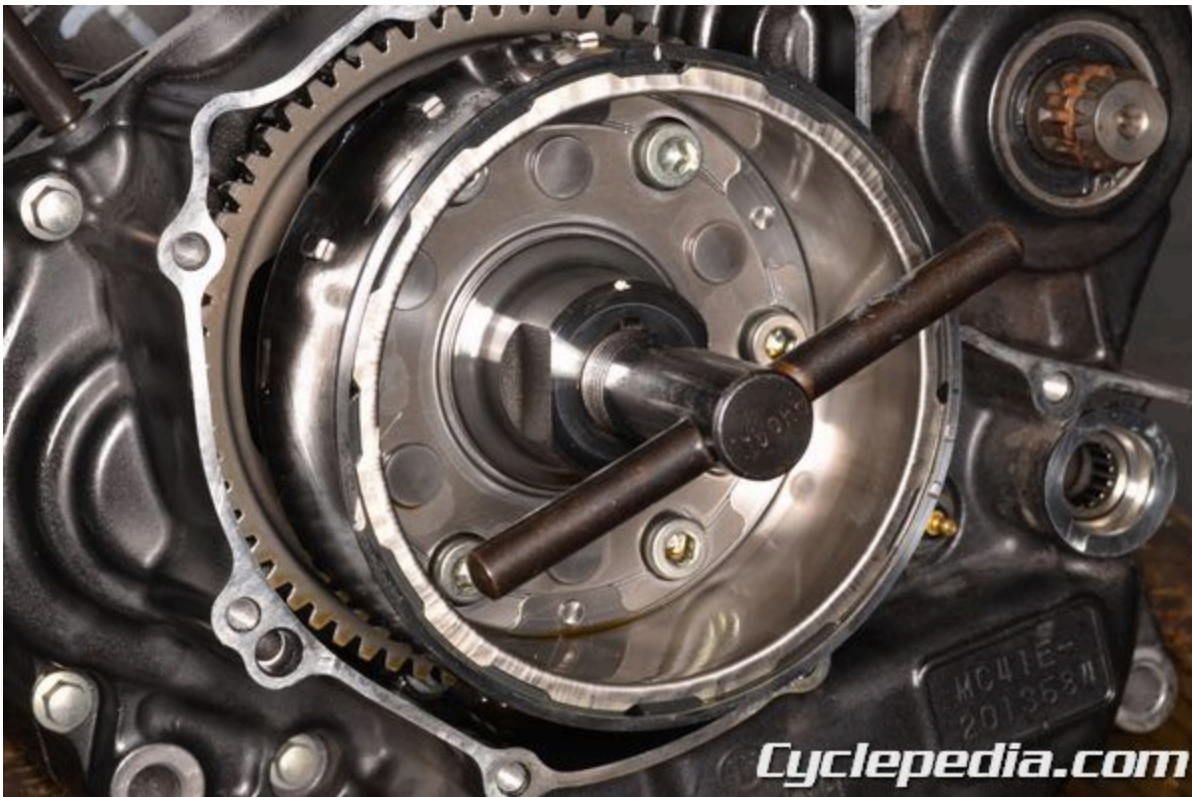
Hold the flywheel with a flywheel holder tool and loosen the flywheel bolt with a 17 mm socket. Note: Do not contact the crank position sensor projections on the flywheel with the rotor holder tool.

**Special Tool – Flywheel Holder:** 07725-0040001



Remove the flywheel bolt and washer.





Apply grease to the threads of the flywheel puller. Use a flywheel rotor puller to remove the flywheel.

**Special Tool – Flywheel Puller:**07733-0020001



Remove the flywheel from the crankshaft.





Remove the woodruff key from the keyway.



Remove the needle bearing from the crankshaft.

## **Installation**





Lubricate the needle bearing with a mixture of molybdenum grease and fresh engine oil.



Install the woodruff key into the keyway. Make sure the tapered end of the crankshaft is clean and oil free.



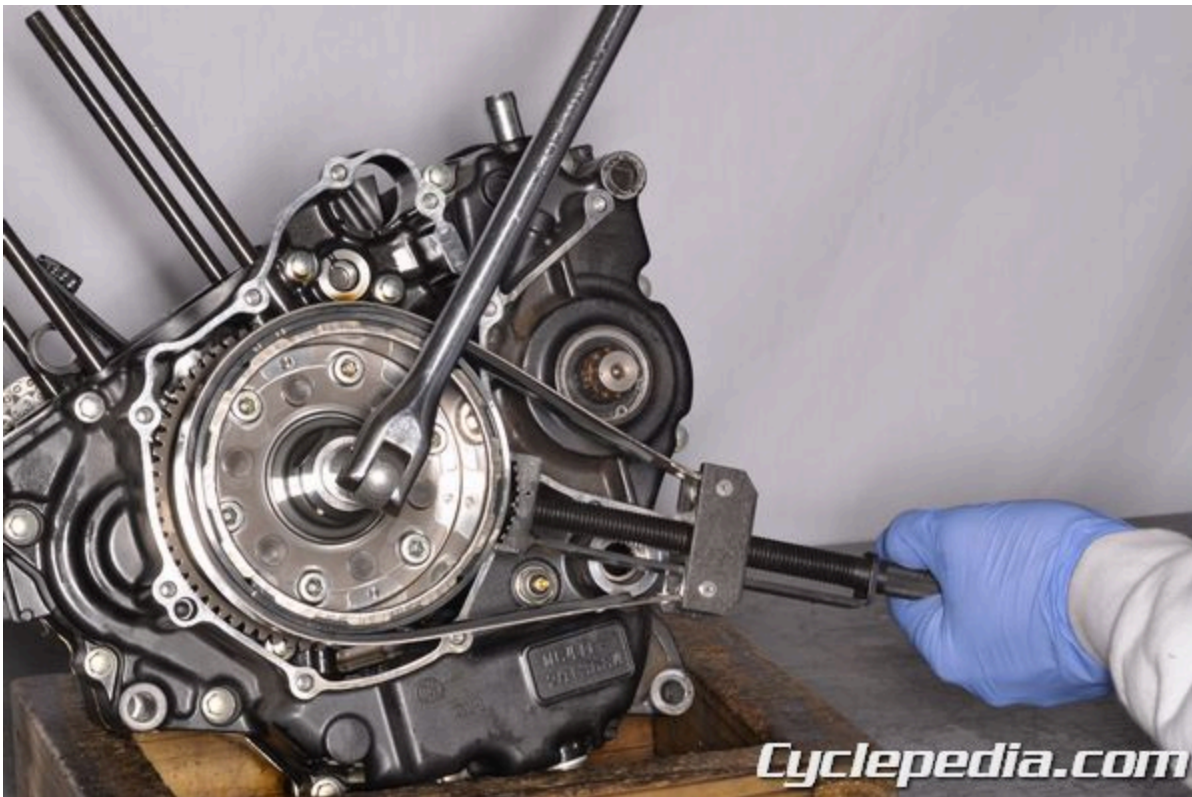


Fit the flywheel into place. Make sure to align the groove in the flywheel with the key on the crankshaft.



Lubricate the threads and seating surface of the flywheel bolt with engine oil, then thread the bolt and washer into place.





Hold the flywheel with a flywheel holder tool and tighten the flywheel bolt with a 17 mm socket. Note: Do not contact the crank position sensor projections on the flywheel with the rotor holder tool.

**Special Tool – Flywheel Holder:** 07725-0040001

**Flywheel bolt (oil threads):** 128 N-m (13.1 kgf-m, 94 ft-lb)



Lubricate the starter reduction gear and shaft with a mixture of molybdenum grease and fresh engine oil. Install the starter reduction gear and shaft.



## Starter Clutch

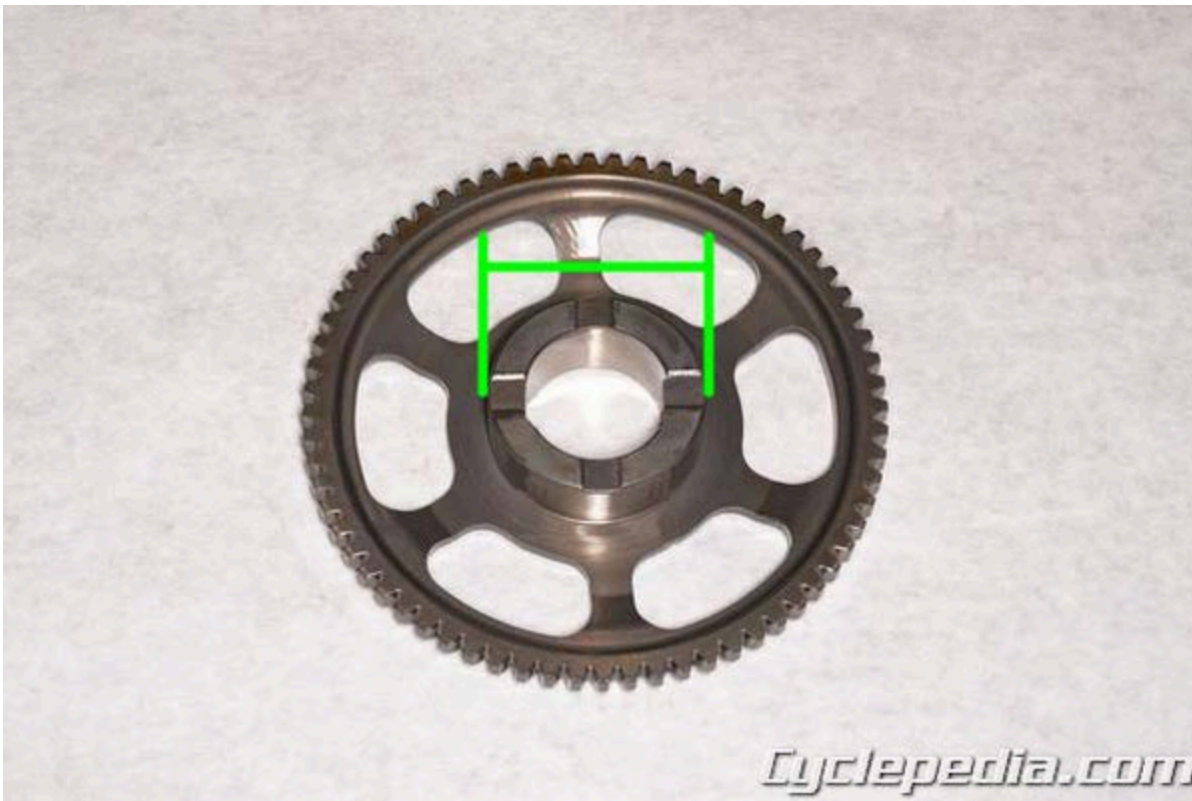


With the flywheel removed (see above), make sure that the starter driven gear turns **counterclockwise** smoothly and does not turn **clockwise**.



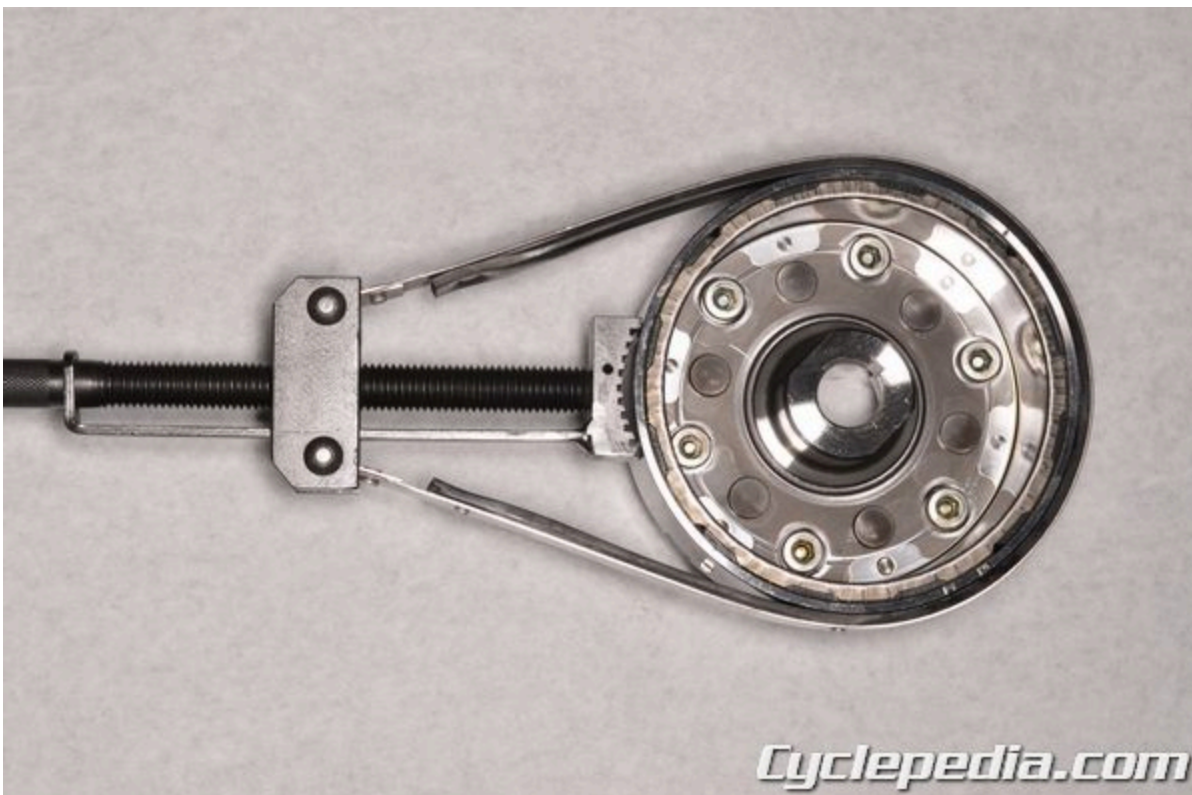
Remove the starter driven gear (while turning it counterclockwise) from the starter clutch on the back of the flywheel.





Examine the starter gear for wear and damage, and replace as necessary. Inspect the condition of the inner and outer surfaces of the starter gear driven boss. Measure outside diameter of the starter driven gear boss and compare to specification.

**Starter driven gear outer diameter:** 51.705 – 51.718 mm (2.0356 – 2.0361 in)



Hold the flywheel with the flywheel holder tool and loosen the starter clutch bolts with a 6 mm hex driver.

**Special Tool – Flywheel Holder: 07725-0040001**



Remove the starter clutch assembly from the back of the flywheel.



Remove the starter clutch from its cover.





Lubricate the starter clutch with engine oil and fit it into its cover.



Fit the starter clutch assembly into place on the back of the flywheel.



Apply blue Loctite to the threads of the starter clutch bolts. Hold the flywheel with the holder tool and tighten the bolts to specification.

**Starter clutch socket bolt (use threadlock):** 30 N-m (3.1 kgf-m, 22 ft-lb)



Lubricate the starter driven gear boss with fresh engine oil and fit the starter driven gear into the starter clutch on the back of the flywheel while turning the gear counterclockwise. Confirm that the gear turns **counterclockwise** smoothly, but does not turn **clockwise** after installation.



Install the flywheel, see earlier in this section.

URLs in this post:

[1] Seat: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/external-components/seat/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/external-components/seat/)

[2] Bodywork: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/)

[3] Engine Oil: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/engine-oil/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/engine-oil/)

[4] Engine Sprocket: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/final-drive/engine-sprocket/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/final-drive/engine-sprocket/)

[5] Gearshift: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/engine/gearshift/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/engine/gearshift/)

[6] Charging System: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/charging-system/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/charging-system/)

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## - Honda CRF300L Service Manual

### Engine Removal

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

10 mm Socket  
12 mm Socket  
14 mm Sockets (2)  
Ratchet  
Breaker Bar  
Nitrile Gloves  
Safety Glasses

Release the fuel system pressure. See the [Releasing Fuel System Pressure](#) <sup>[1]</sup> topic for more information.

Drain the engine oil. See the [Engine Oil](#) <sup>[2]</sup> topic for more information.

Drain the radiator coolant. See the [Coolant](#) <sup>[3]</sup> topic for more information.

Support the motorcycle chassis on a stand on a level surface.

Remove or perform the following:

[Seat](#) <sup>[4]</sup>

[Bodywork](#) <sup>[5]</sup> (Side Covers, Fuel Tank Shrouds, Frame Guard, rear cowl/upper fender, rear fender/tag mount assembly, and rear lower fender. Also on LR/LRA models the Front Under Guard and Rear Under Cowl)

[Fuel Tank](#) <sup>[6]</sup>

[Radiator](#) <sup>[7]</sup>

[Exhaust System](#) <sup>[8]</sup>

[Air Box](#) <sup>[9]</sup>

[Throttle Body](#) <sup>[10]</sup>

[Chain Guards](#) <sup>[11]</sup> (engine sprocket cover)

[Clutch Adjustment](#) <sup>[12]</sup> (disconnect the cable and cable guide at the engine)

[Gearshift](#) <sup>[13]</sup> (shift pedal)

[Brake Pedal](#) <sup>[14]</sup>

[Engine Sprocket](#) <sup>[15]</sup>

[EVAP System](#) <sup>[16]</sup> (if equipped, remove the Canister/Solenoid Valve)

[Spark Plug](#) <sup>[17]</sup> (cap)

[Crankcase Breather](#) <sup>[18]</sup> (disconnect the hose from the fitting on top of the engine case)

[Switches](#) <sup>[19]</sup> (remove the brake light switch for clearance)





Unplug the ECT sensor connector.

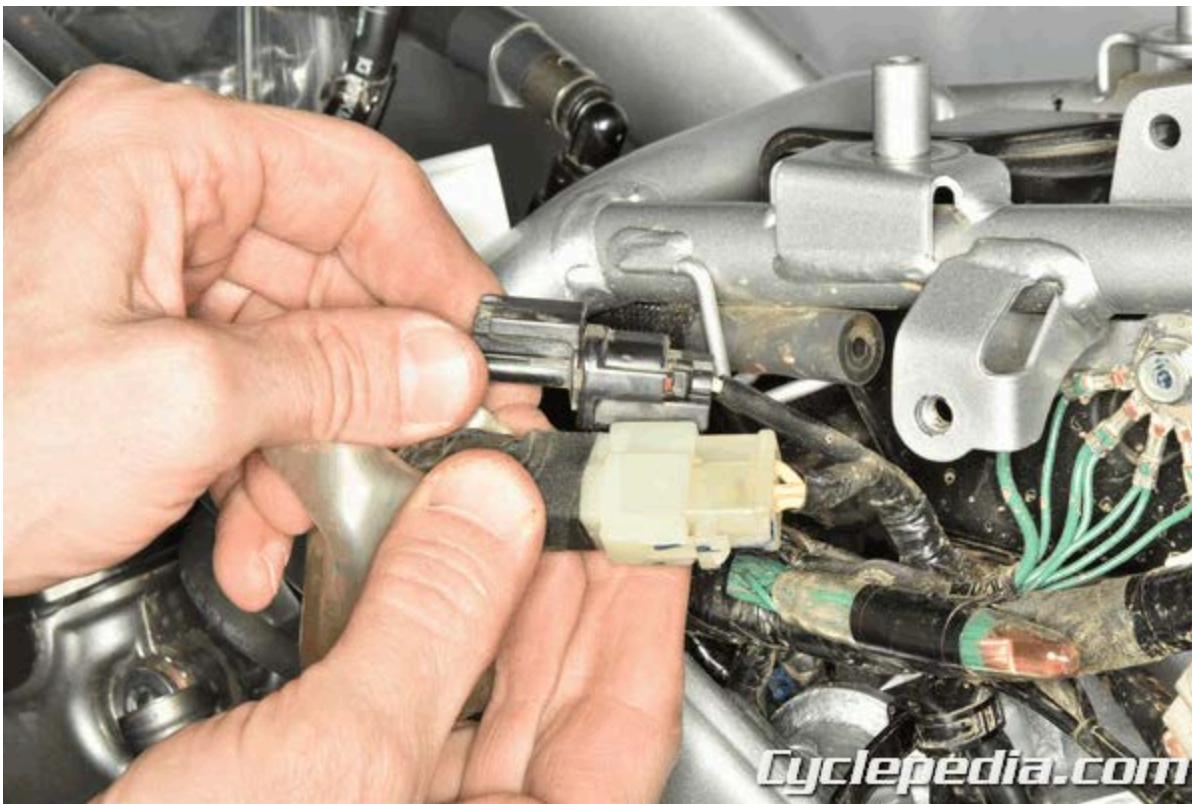


Locate the stator wiring in a opaque rubber boot along the left frame rail as shown.





Pull the rubber boot and harness out from the frame.



Remove the white alternator stator coil connector with the Yellow wires and the black CKP sensor connector.





Unplug the alternator stator coil connector.



Unplug the CKP sensor connector.





Pull the gear position switch harness out of the boot and unplug the connector.



Free the gear position switch connector from the bracket.





Pull back the black rubber cover.



Remove the starter cable that was under the boot using a 10 mm socket. Be careful not to turn the starter motor terminal post.





Just to the left of the starter cable, remove the ground cable bolt using a 10 mm socket.



Free the engine harness from and wire ties.





And free the harness from any guides.

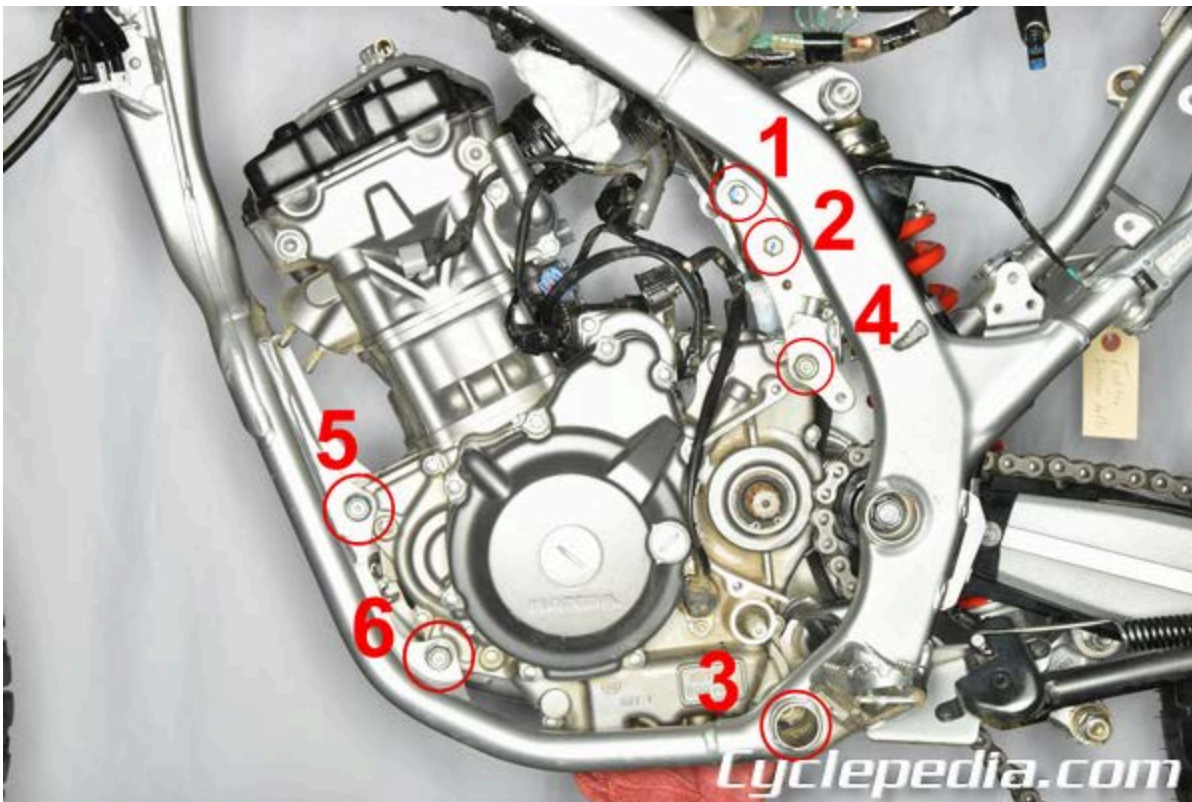


Unplug the connector for the vehicle speed sensor and free it from any guides.

On LR/LRA models remove the bolts that secure the brake line stays at the bottom of the engine hanger brackets.



Support the engine using a jack or other adjustable support.



Make sure the engine support is secure, then loosen and remove the engine hanger fasteners (#1 and #2) and the engine mounting bolts (#3 – 6) in the order shown (which is the reverse of the torque sequence).

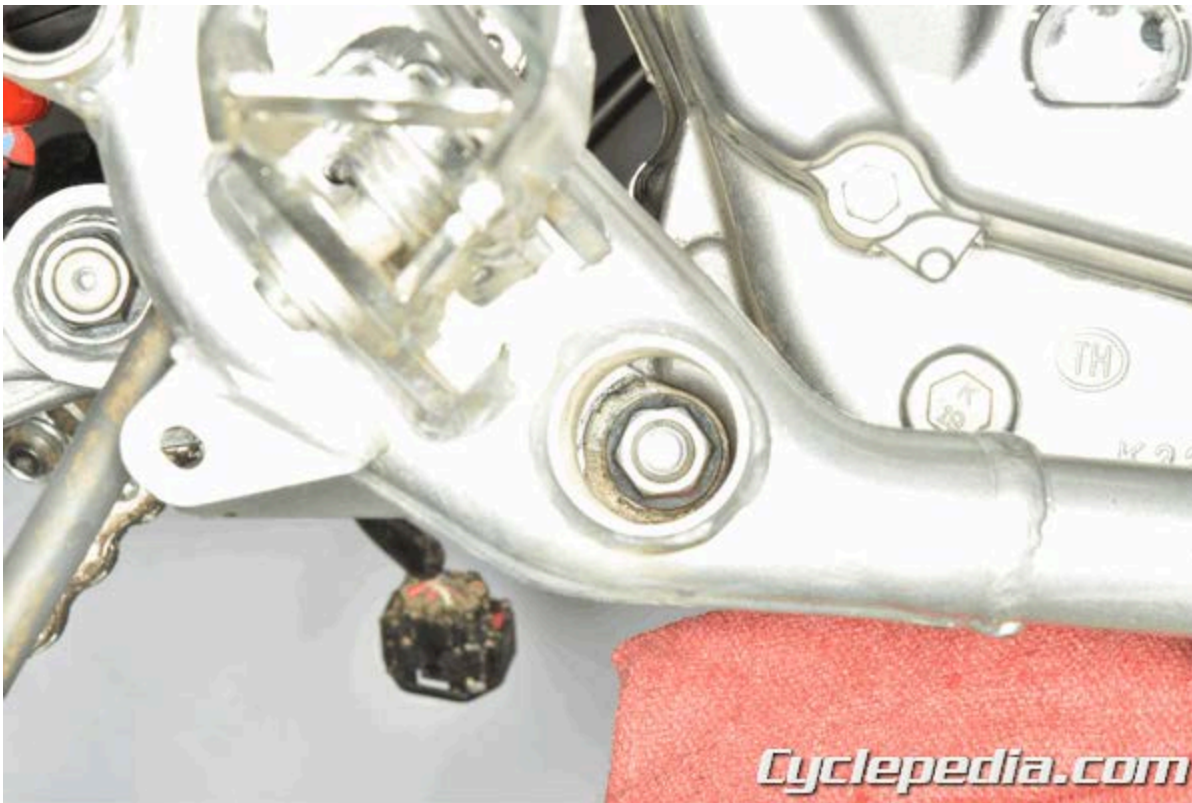




Remove the the engine hanger-t0-frame mounting bolts on each side using a 12 mm socket.



Hold the lower engine mounting bolt from turning using a 14 mm socket.

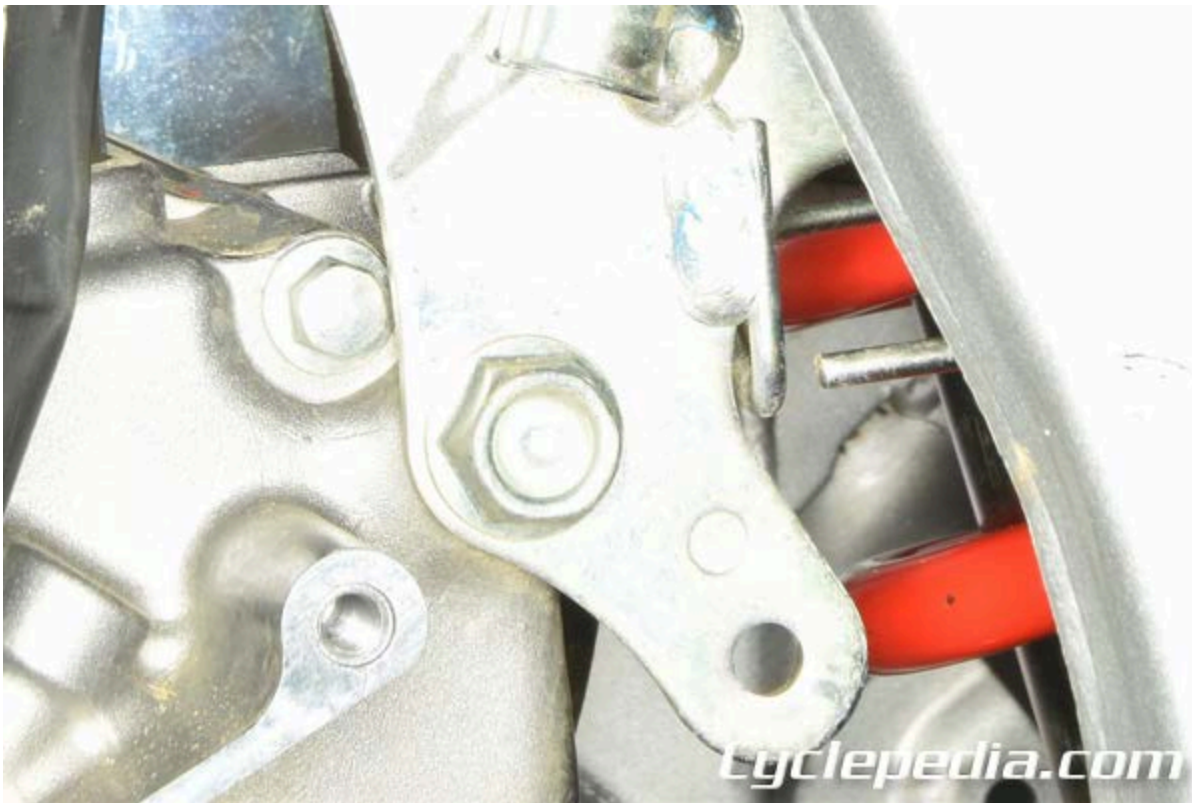


And remove the lower engine mounting nut using a second 14 mm socket. Remove the lower mounting bolt after the nut is free.



Now got back and hold the upper rear engine mounting bolt with a 14 mm socket and remove the nut with a second 14 mm socket.





Remove the upper rear engine mounting bolt and the engine hanger brackets.



Hold the two front engine mounting bolts from turning using a 14 mm socket, then remove the nuts and washers using a second 14 mm socket.



Finally, hold the engine steady and remove the two front engine mounting bolts.



Working on the right side of the motorcycle, lift up slightly on the engine then turn its lower rear side out of the frame and remove the engine.

To install the engine see the [Engine Installation](#) <sup>[20]</sup> topic.  
URLs in this post:



- [1] Releasing Fuel System Pressure: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/releasing-fuel-system-pressure/>
- [2] Engine Oil: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/engine-oil/>
- [3] Coolant: <https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/coolant/>
- [4] Seat: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/seat/>
- [5] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>
- [6] Fuel Tank: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/fuel-tank/>
- [7] Radiator: <https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/radiator/>
- [8] Exhaust System: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/exhaust-system/>
- [9] Air Box: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/airbox/>
- [10] Throttle Body: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/throttle-body/>
- [11] Chain Guards: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/chain-guards/>
- [12] Clutch Adjustment: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/clutch-adjustment/>
- [13] Gearshift: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/gearshift/>
- [14] Brake Pedal: <https://www.cyclepedia.com/manuals/online/cpp-323/rear-brake/brake-pedal/>
- [15] Engine Sprocket: <https://www.cyclepedia.com/manuals/online/cpp-323/final-drive/engine-sprocket/>
- [16] EVAP System: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/emissions/>
- [17] Spark Plug: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/spark-plug/>
- [18] Crankcase Breather: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/crankcase-breather/>
- [19] Switches: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/switches/>
- [20] Engine Installation: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/engine-installation/>

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## - Honda CRF300L Service Manual

### Engine Installation

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

10 mm Socket  
12 mm Socket  
14 mm Sockets (2)  
Ratchet  
Torque Wrench  
Nitrile Gloves  
Safety Glasses

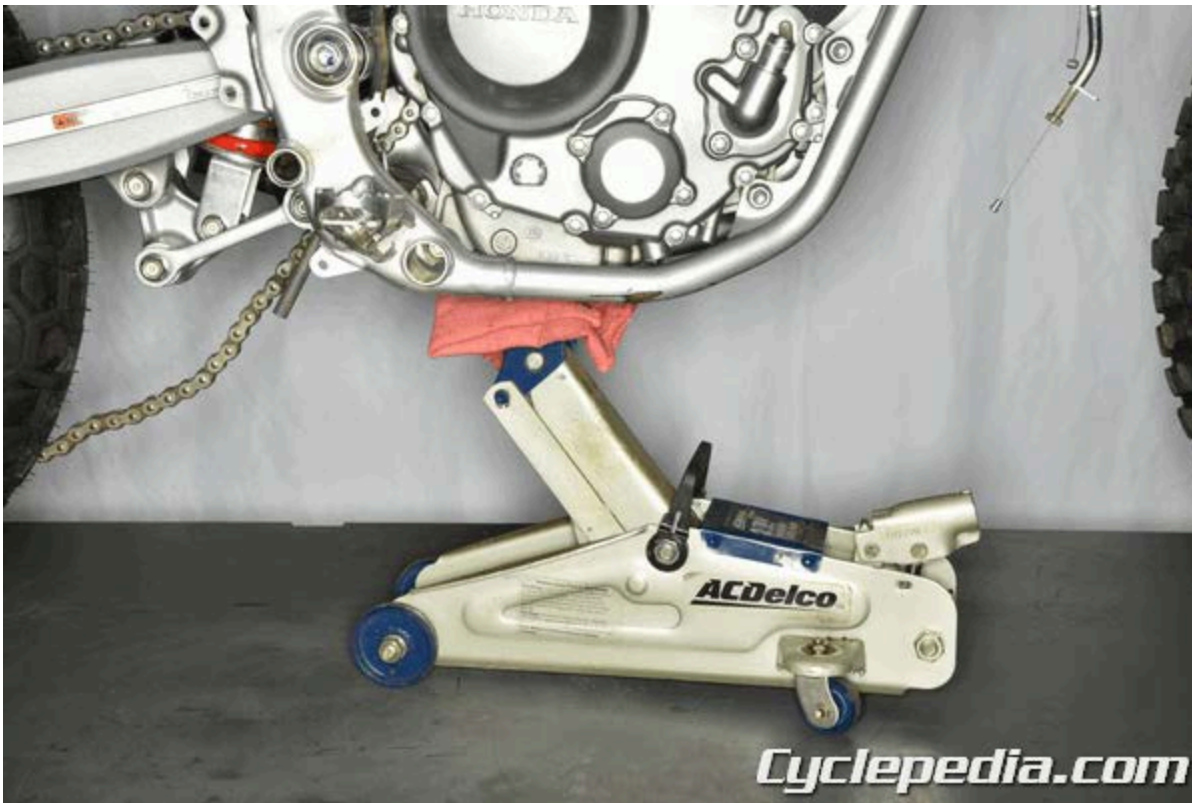
#### **NOTE:**

Note the direction of installation for the engine mounting bolts (they are all installed from the left side). Place the jack or other adjustable support under the engine. The jack height must be continually adjusted to relieve tension for ease bolt installation. Carefully align the mounting points with the jack to prevent damage to engine, frame, water hose, wires and cables. Loosely install all the engine mounting bolts and nuts, then tighten the bolts and nuts to the specified torque in the specified sequence. Route the wires and cables properly.

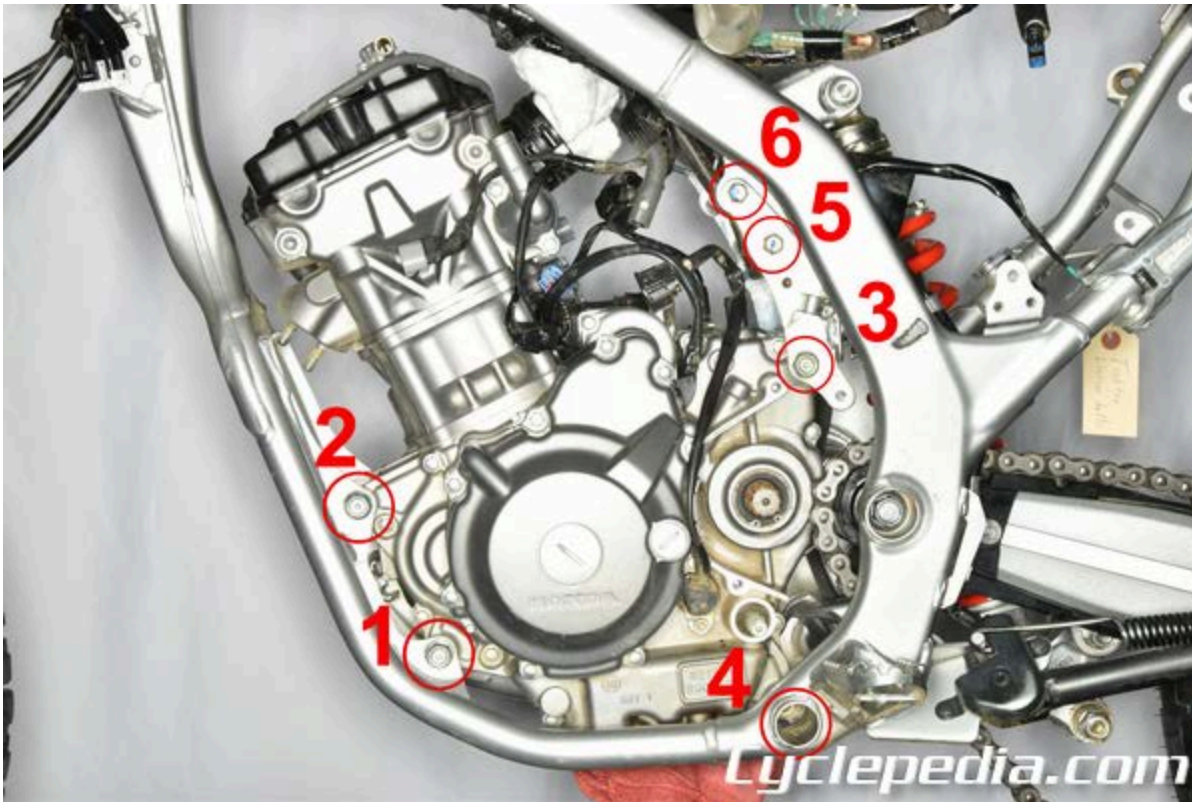


Move the engine into position and place it into the frame from the right side.





Support the engine using a jack so the mounting bolts can be installed. Adjust the jack as needed to keep pressure off the fasteners allowing them to be inserted.



Loosely install all of the fasteners and then go back to tighten them to specification in the order shown:

- 1:** Install the front lower engine mounting bolt (inserted from the left side) and thread on the nut with washer
- 2:** Install the front upper engine mounting bolt (inserted from the left side) and thread on the nut with washer

**3:** Rear upper engine mounting bolt (inserted from the left side) and thread on the nut

**4:** Rear lower engine mounting bolt (inserted from the left side) and thread on the nut

**5:** Rear engine hanger plate bolt (lower)

**6:** Rear engine hanger plate bolt (upper)

Once all of these fasteners are loosely installed and the engine positioned so no fastener is binding proceed with tightening them all to specification in the same order given and shown below.



Start by tightening the lower front engine mounting nut to specification followed by the upper nut. Hold the bolts from turning using a 14 mm socket and tighten the nuts using a second 14 mm socket.

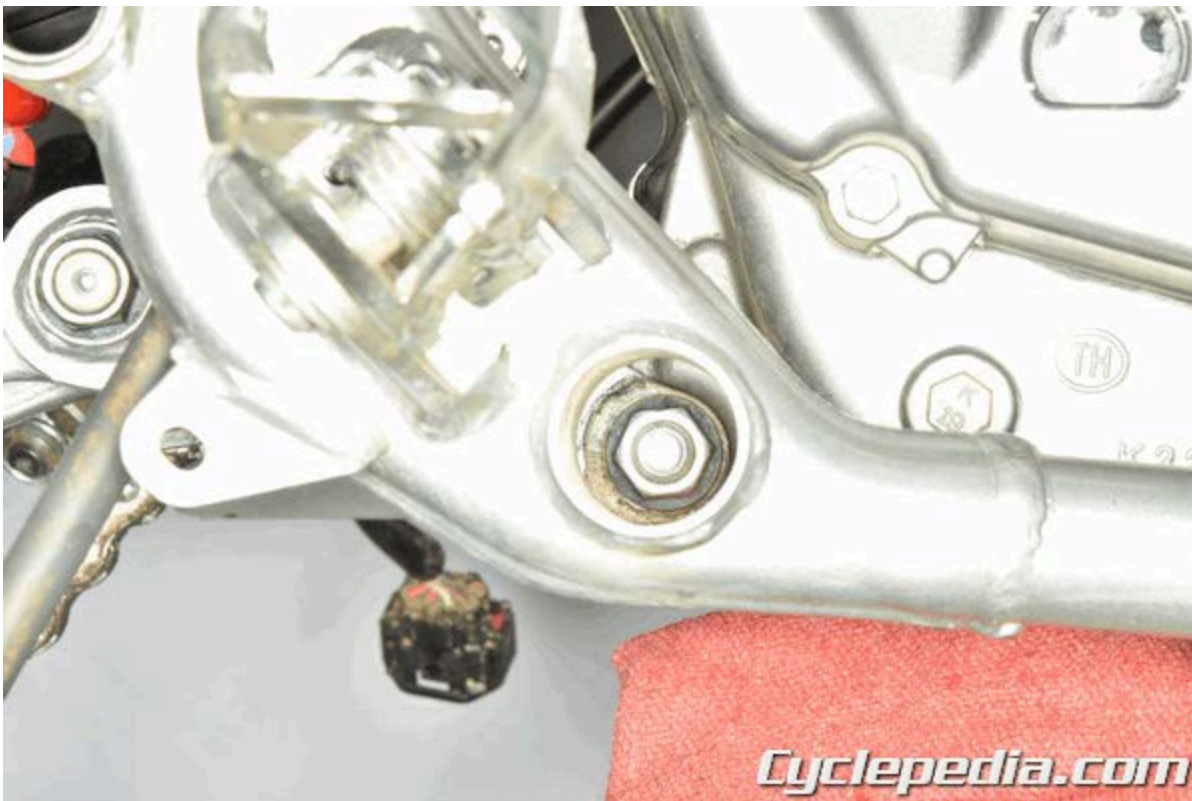
**Front engine mounting nut:** 55 N-m (5.6 kgf-m, 41 ft-lb)





Move to the upper rear engine mounting bolt/nut. Again hold the bolt from turning using a 14 mm socket and tighten the nut to specification using a second 14 mm a socket.

**Rear engine mounting nut:** 45 N-m (4.6 kgf-m, 33 ft-lb)



Next use the 14 mm sockets to tighten the rear lower mounting nut to specification.

**Rear engine mounting nut:** 45 N-m (4.6 kgf-m, 33 ft-lb)



Lastly, move to the engine hanger plate and tighten the lower plate mounting bolt, then the upper plate mounting bolt to specification using a 12 mm socket.

**Engine hanger plate bolt:** 27 N-m (2.8 kgf-m, 20 ft-lb)

Remove the jack or engine support.

On LR/LRA models, install the bolts that secure the brake line stays at the bottom of the engine hanger brackets and tighten securely.





Plug in the connector for the vehicle speed sensor.



Route the harnesses and secure to any guides.



Replace any wire ties that were released during removal.





Insert the starter mounting bolt that secures the ground strap and tighten securely with a 10 mm socket.



Fit the starter cable to the starter motor and thread on the nut. Tighten the nut securely with a 10 mm socket.





Install the rubber cover.



Secure the gear position switch connector to the bracket.





Plug in the gear position switch connector and pull the rubber boot down to protect it.



Plug in the wiring for the CKP sensor and the Alternator.





Secure the wiring in the rubber boot and tuck it into the frame as shown.



Plug in the ECT connector.

Install the following components:

Switches <sup>[1]</sup> (brake light switch)

Crankcase Breather <sup>[2]</sup> (connect the hose to the fitting on top of the engine case)

Spark Plug <sup>[3]</sup> (cap)

EVAP System <sup>[4]</sup> (if equipped, install the Canister/Solenoid Valve)

Engine Sprocket <sup>[5]</sup>

Brake Pedal <sup>[6]</sup>

Gearshift <sup>[7]</sup> (shift pedal)

Clutch Adjustment <sup>[8]</sup> (connect the cable and cable guide at the engine and adjust as needed)

Chain Guards <sup>[9]</sup> (engine sprocket cover)

Throttle Body <sup>[10]</sup>

Air Box <sup>[11]</sup>

Exhaust System <sup>[12]</sup>

Radiator <sup>[13]</sup>

Fuel Tank <sup>[14]</sup>

Bodywork <sup>[15]</sup>

Seat <sup>[16]</sup>

Refill the engine oil. See the Engine Oil <sup>[17]</sup> topic for more information.

Refill the radiator coolant. See the Coolant <sup>[18]</sup> topic for more information.

Pressurize the fuel system and check for leaks. See the Releasing Fuel System Pressure <sup>[19]</sup> topic for more information.

Check and adjust the throttle cable as needed. See the Throttle Free Play <sup>[20]</sup> topic for more information.

URLs in this post:

[1] Switches: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/switches/>

[2] Crankcase Breather: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/crankcase-breather/>

[3] Spark Plug: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/spark-plug/>

[4] EVAP System: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/emissions/>

[5] Engine Sprocket: <https://www.cyclepedia.com/manuals/online/cpp-323/final-drive/engine-sprocket/>

[6] Brake Pedal: <https://www.cyclepedia.com/manuals/online/cpp-323/rear-brake/brake-pedal/>

[7] Gearshift: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/gearshift/>

[8] Clutch Adjustment: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/clutch-adjustment/>

[9] Chain Guards: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/chain-guards/>

[10] Throttle Body: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/throttle-body/>

[11] Air Box: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/airbox/>

[12] Exhaust System: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/exhaust-system/>

[13] Radiator: <https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/radiator/>

[14] Fuel Tank: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/fuel-tank/>



[15] Bodywork: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/)

[16] Seat: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/external-components/seat/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/external-components/seat/)

[17] Engine Oil: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/engine-oil/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/engine-oil/)

[18] Coolant: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/coolant/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/coolant/)

[19] Releasing Fuel System Pressure: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/releasing-fuel-system-pressure/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/releasing-fuel-system-pressure/)

[20] Throttle Free Play: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/throttle-free-play/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/throttle-free-play/)

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## - Honda CRF300L Service Manual

### Crankcase Splitting

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### Suggested Tools and Supplies

8 mm Socket  
Ratchet  
Nitrile Gloves  
Safety Glasses

Remove the engine. See the [Engine Removal](#) <sup>[1]</sup> topic for more information.

Remove or perform the following for access:

[Spark Plug](#) <sup>[2]</sup>

[Cylinder Head Cover](#) <sup>[3]</sup>

[Camshafts](#) <sup>[4]</sup>

[Cylinder Head](#) <sup>[5]</sup>

[Piston and Cylinder](#) <sup>[6]</sup>

[Clutch Removal](#) <sup>[7]</sup>

[Oil Pump](#) <sup>[8]</sup>

[Gearshift](#) <sup>[9]</sup>

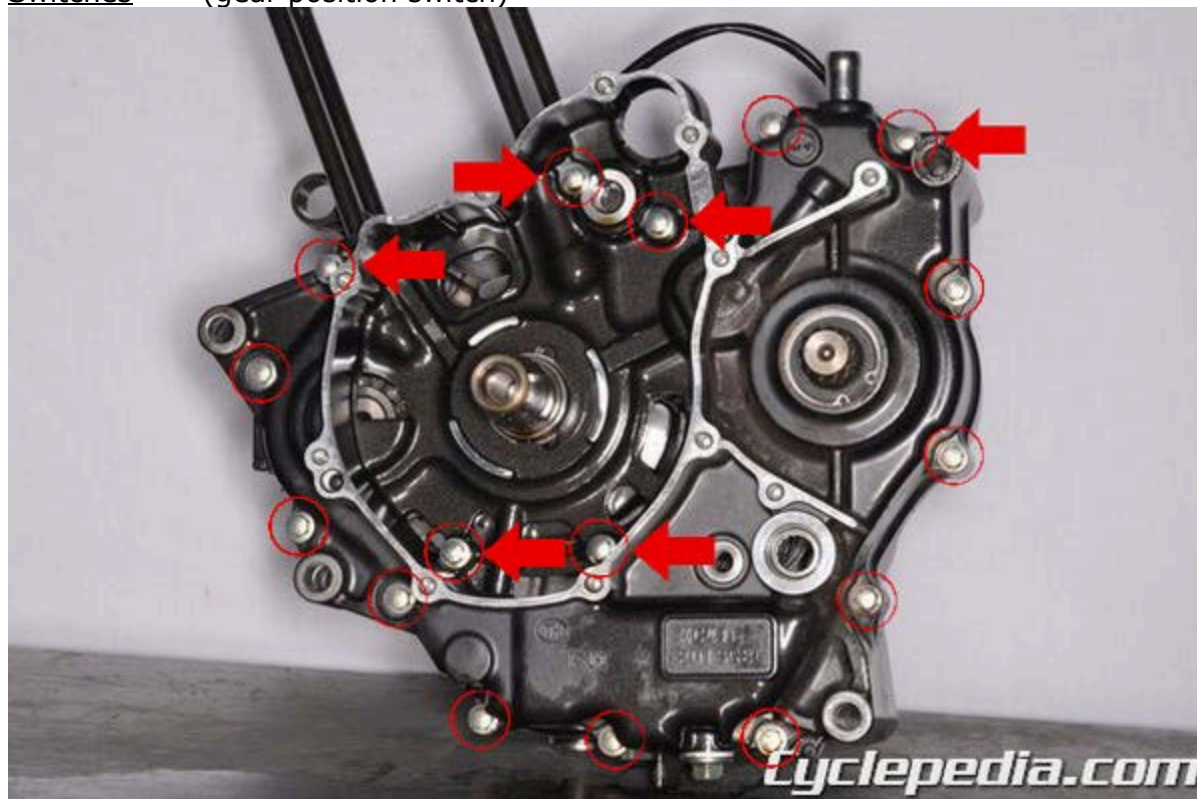
[Primary Drive Gear](#) <sup>[10]</sup> (with balancer drive gear and cam chain)

[Left Side Engine Components](#) <sup>[11]</sup>

[Starter Motor](#) <sup>[12]</sup>

[Sensors](#) <sup>[13]</sup> (VS sensor)

[Switches](#) <sup>[14]</sup> (gear position switch)



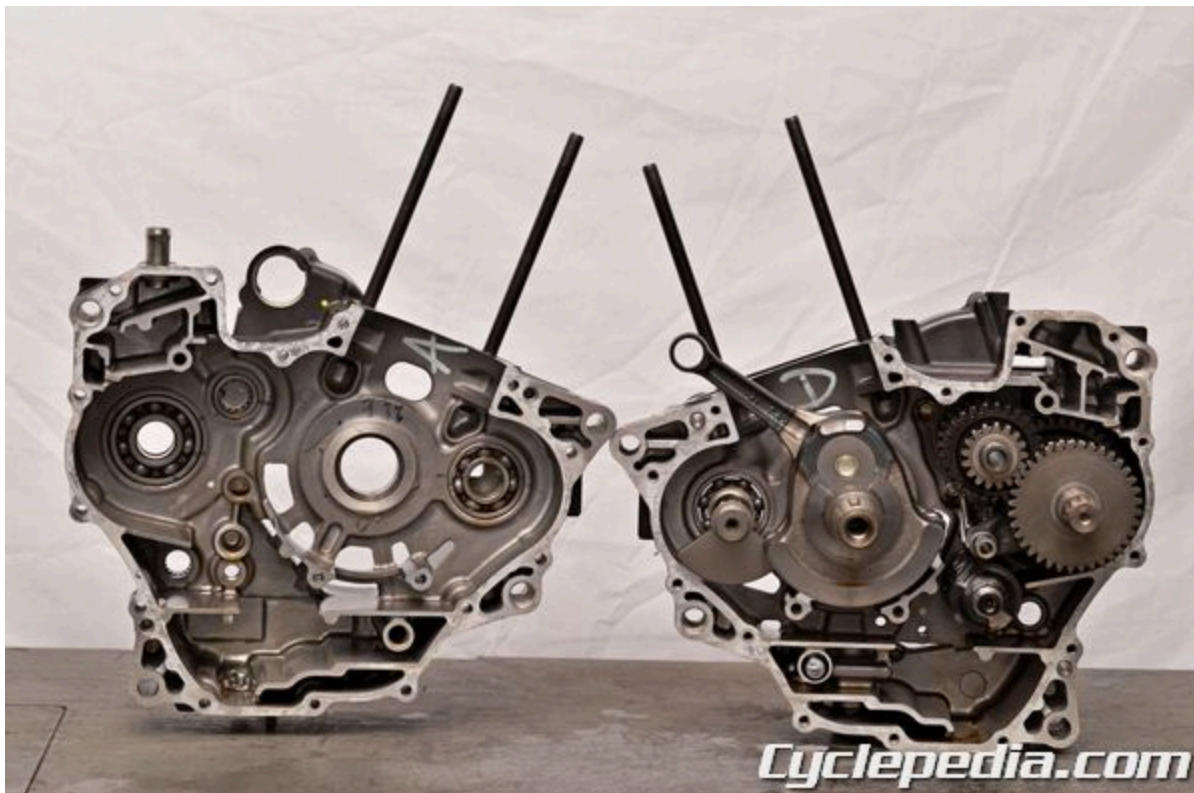


Loosen the sixteen crankcase bolts evenly with multiple passes of a crisscross pattern. Remove the crankcase bolts with an 8 mm socket.

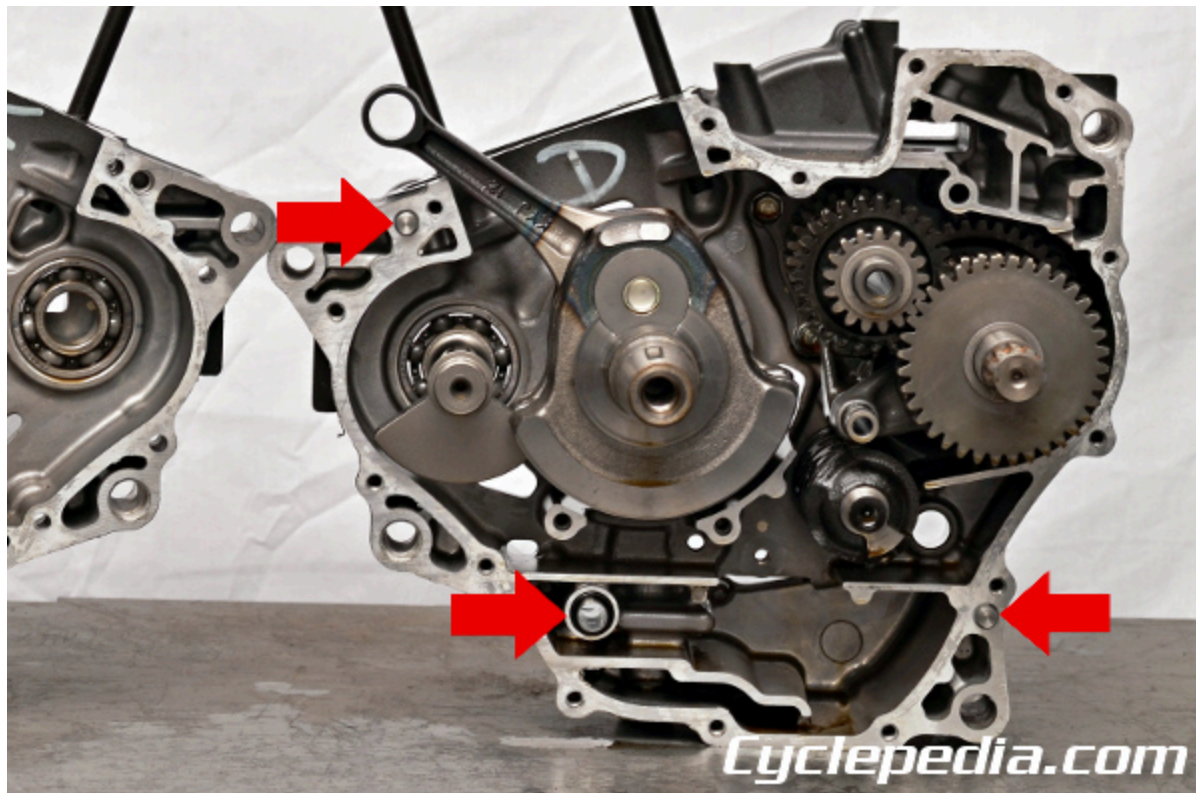
Note: Keep all bolts sorted by position as there are two different lengths. The longer ones are marked with arrows in the accompanying photo.



Set the crankcase on its right side. Lift off the left crankcase half. Carefully tap the crankcases with a plastic hammer to free the dowel pins if needed.



Do not pry the crankcases apart or damage the mating surfaces in any way.

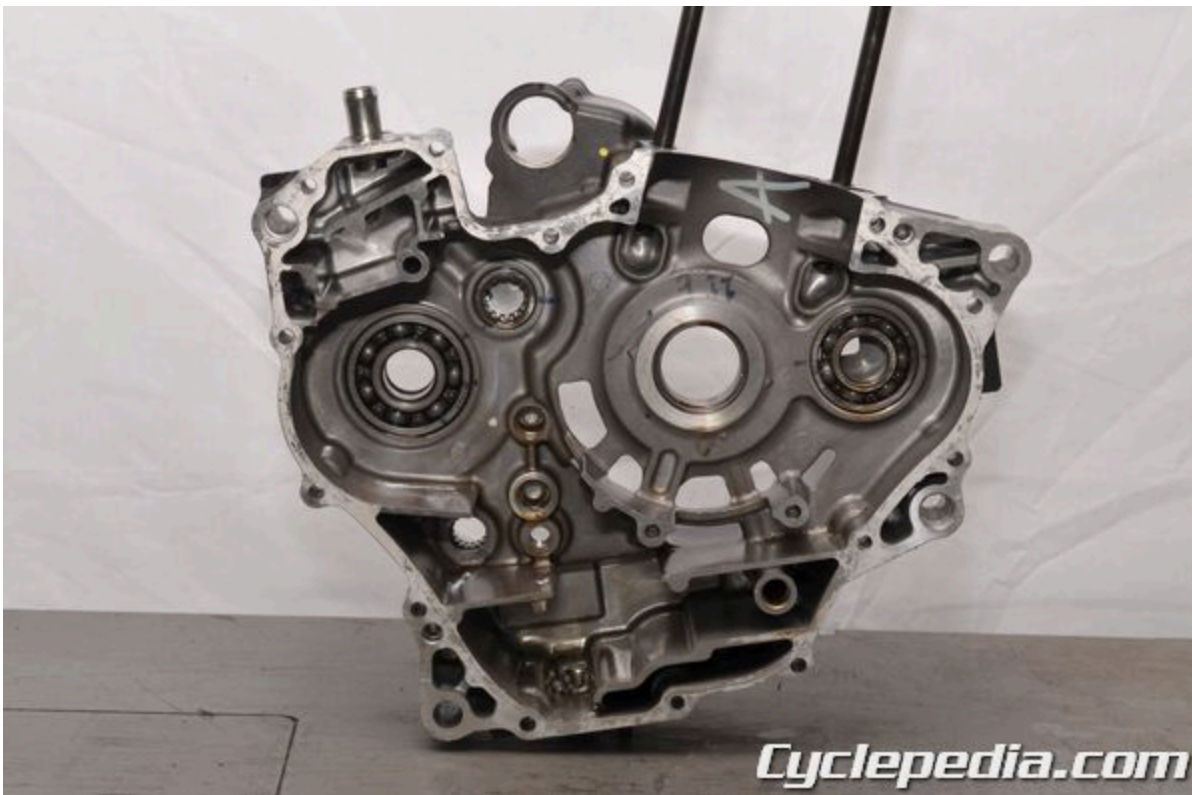


Remove the dowel pins.





Be sure to replace the O-ring on the one at the lower center of the case.



Clean the gasket material from the crankcase mating surfaces.

Use compressed air to blow out all the crankcase oil passages. Check for clogs and clear.

To reassemble the crankcases, see the [Crankcase Assembly](#) <sup>[15]</sup> topic.  
URLs in this post:

- [1] Engine Removal: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/engine-removal/>
- [2] Spark Plug: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/spark-plug/>
- [3] Cylinder Head Cover: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/cylinder-head-cover/>
- [4] Camshafts: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/camshaft-and-rocker-arms/>
- [5] Cylinder Head: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/cylinder-head/>
- [6] Piston and Cylinder: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/piston-and-cylinder/>
- [7] Clutch Removal: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/clutch-removal/>
- [8] Oil Pump: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/oil-pump/>
- [9] Gearshift: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/gearshift/>
- [10] Primary Drive Gear: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/right-side-engine-components-2/>
- [11] Left Side Engine Components: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/left-side-engine-components/>
- [12] Starter Motor: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/starter-motor/>
- [13] Sensors: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/sensors/>
- [14] Switches: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/switches/>
- [15] Crankcase Assembly: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/crankcase-assembly/>

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## - Honda CRF300L Service Manual

### Crankcase Bearings

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

10 mm Socket  
Ratchet  
Driver Set  
Bearing Puller Set  
Nitrile Gloves  
Safety Glasses

Split the crankcases. See the [Crankcase Splitting](#) <sup>[1]</sup> topic for more information.

Remove the crankshaft. See the [Crankshaft](#) <sup>[2]</sup> topic for more information.

Remove the transmission. See the [Transmission](#) <sup>[3]</sup> topic for more information.



Place any new bearings you want to replace in the freezer for at least a half hour before you plan to install them.



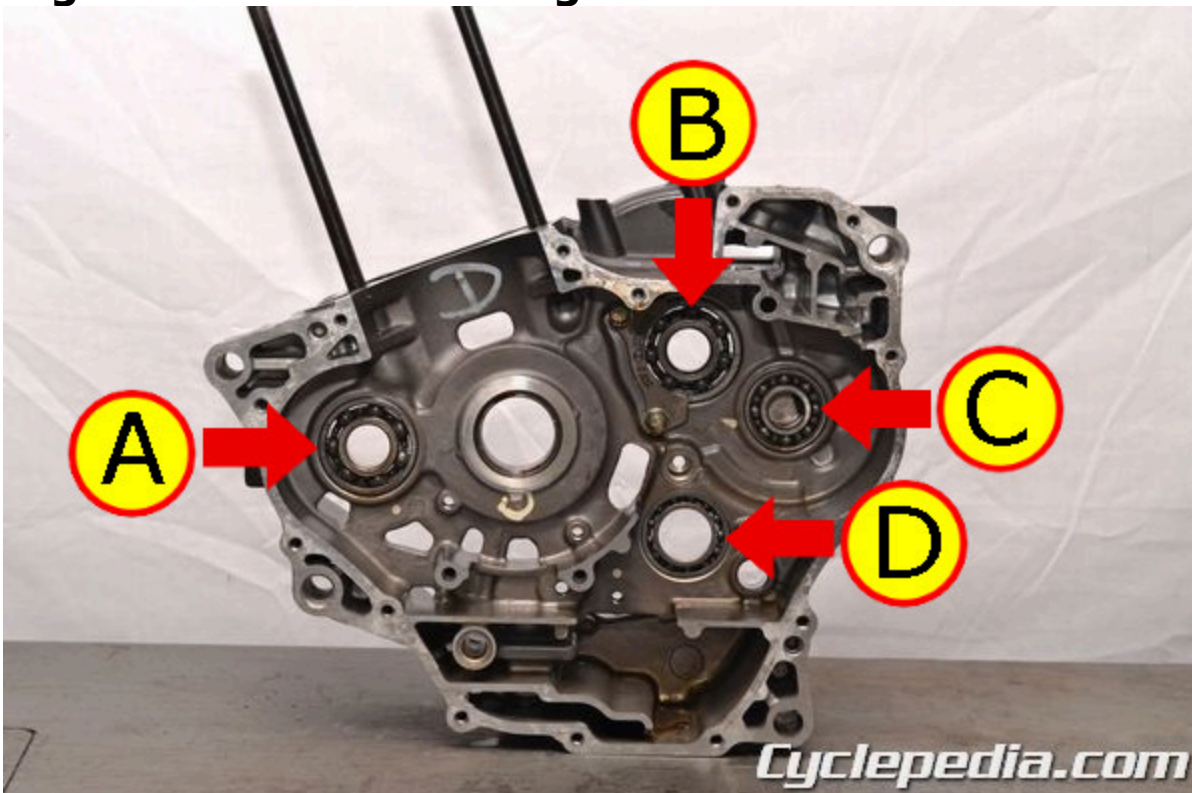




Drive in the new bearings by their outer races with the appropriate tool with the same outside diameter as the bearing. The markings on the bearings should face out. The bearings must go in squarely.

Replace the seals as needed. Apply grease to the lips of the seals. Drive in the seal so that their markings face out. Use a suitable driver that has the same outside diameter as the seal.

## Right Crankcase Bearings



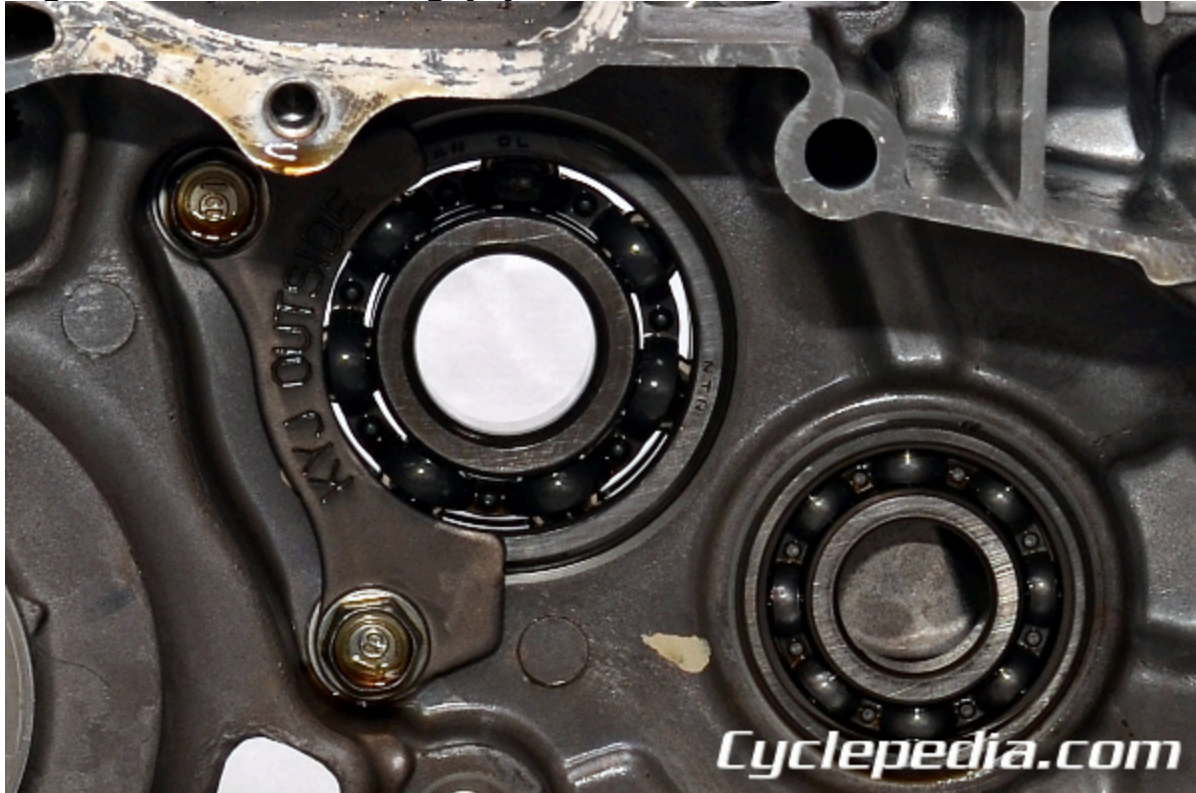
The following bearings are found in the right crankcase:

Balancer shaft (A)  
Mainshaft (B)  
Countershaft (C)  
Shift Drum (D)

### **Right Balancer Shaft Bearing (A)**

The right balancer shaft bearing can be driven out from the outside of the case using a suitable driver. During installation it is driven into position from inside the case with the marked side facing up (back toward the driver).

### **Right Mainshaft Bearing (B)**



Loosen the right mainshaft bearing plate bolts with a 10 mm socket and remove the plate. The bearing can be removed from the other side using a suitable driver. During installation position the new mainshaft bearing with the marked side facing up and install it from inside the case. Install the plate after the bearing has been replaced and position it with the stamped marking *OUTSIDE* facing out. Apply blue Loctite to the bearing plate bolts and tighten them securely with a 10 mm socket.

### **Right Countershaft Bearing (C)**

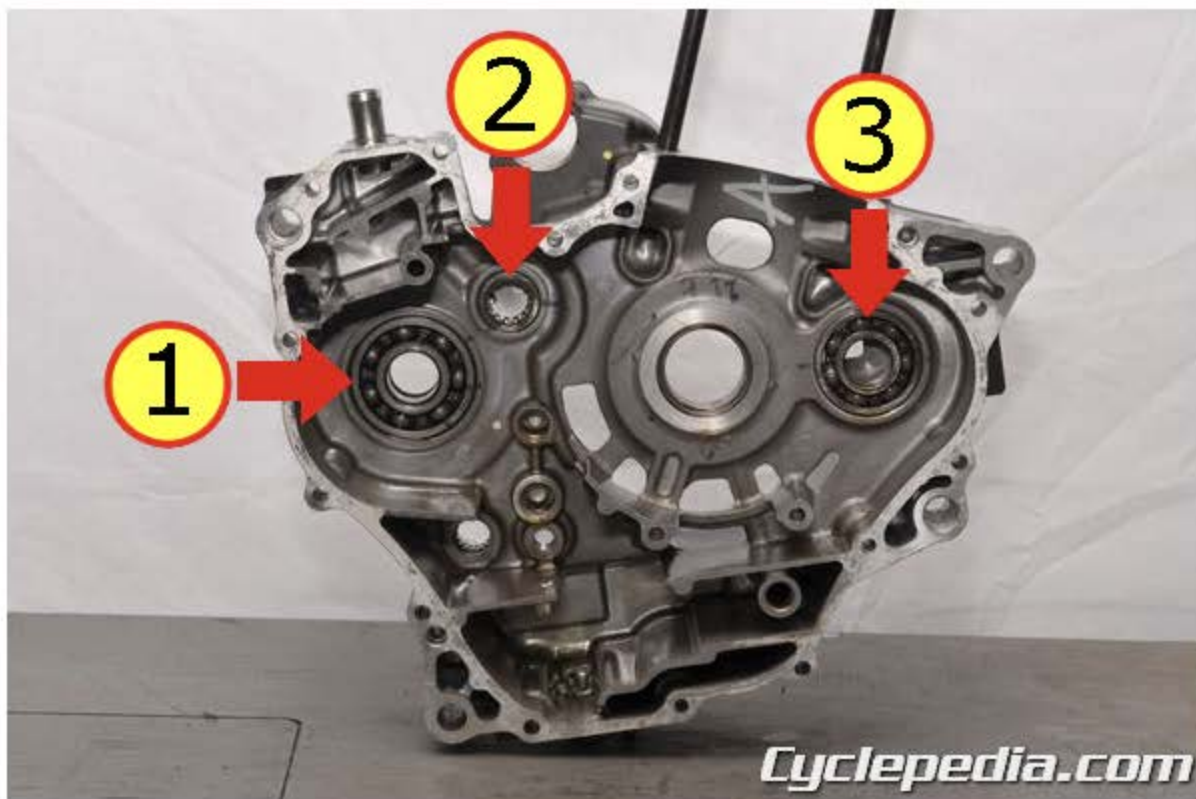
The countershaft bearing is installed in a blind hole so it must be removed with a puller. Be sure to install the new countershaft bearing with the sealed side facing downward.

### **Right Shift Drum Bearing (D)**

The right shift drum bearing can be driven out from the outside of the case using a suitable driver. During installation it is driven into position from inside the case with the marked side facing up (back toward the driver).

## **Left Crankcase Bearings**





The following bearings are found in the left crankcase:

Countershaft (1)

Mainshaft (2)

Balancer shaft (3)

### **Left Countershaft Bearing (1)**

The left countershaft bearing is mounted to the inside of the left case, but it is removed by driving it out from the outside of the case inward after the seal has been removed. The seal is secured by a snap ring, so remove the snap ring and seal before attempting to remove the bearing. The new bearing should be installed from inside the case with the marked side facing up. The new seal should be installed from outside the case after its lips are coated with grease. Position the seal with the marked side facing up and drive it in until flush with the snap ring groove, then secure it with a snap ring.

### **Left Mainshaft Needle Bearing (2)**

The left mainshaft needle bearing is installed into a blind hole in the crankcase so it must be removed with a puller.

### **Left Balancer Shaft Bearing (3)**

The left balancer shaft bearing is installed into a blind hole in the crankcase so it must be removed with a puller. Be sure to install the new countershaft bearing with the marked side facing up.

URLs in this post:

[1] Crankcase Splitting: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/crankcase-splitting/>

[2] Crankshaft: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/crankshaft-and-rod/>

[3] Transmission: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/transmission-removal/>

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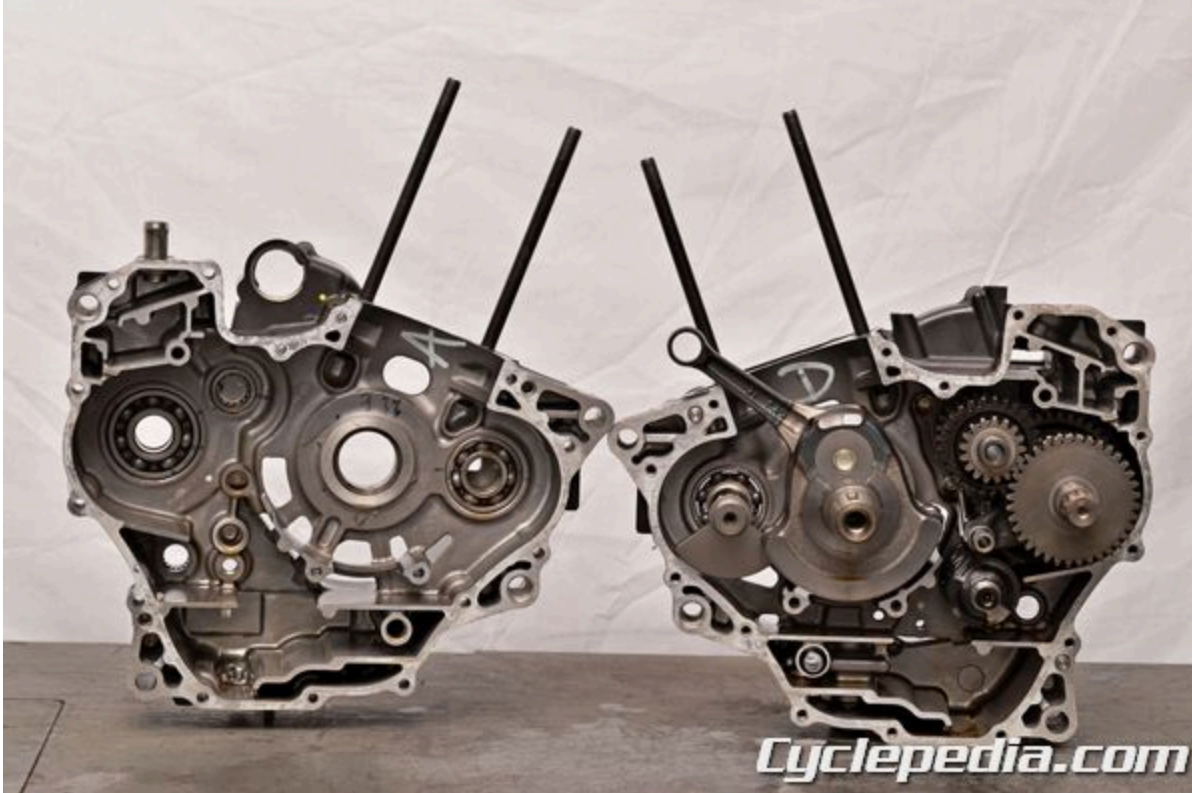
## - Honda CRF300L Service Manual

### Crankcase Assembly

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

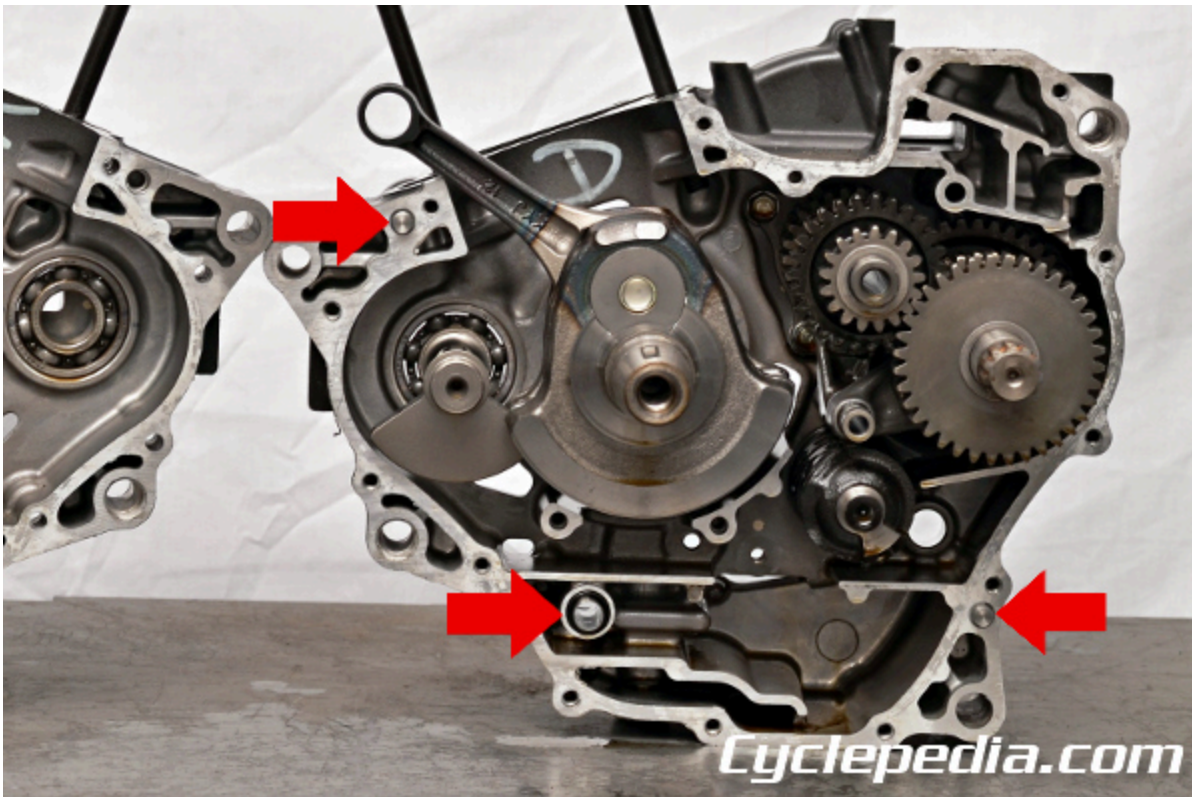
#### Suggested Tools and Supplies

8 mm Socket  
Ratchet  
Nitrile Gloves  
Safety Glasses



Thoroughly clean the crankcase mating surfaces. Lubricate the moving parts in the crankcase with fresh engine oil.

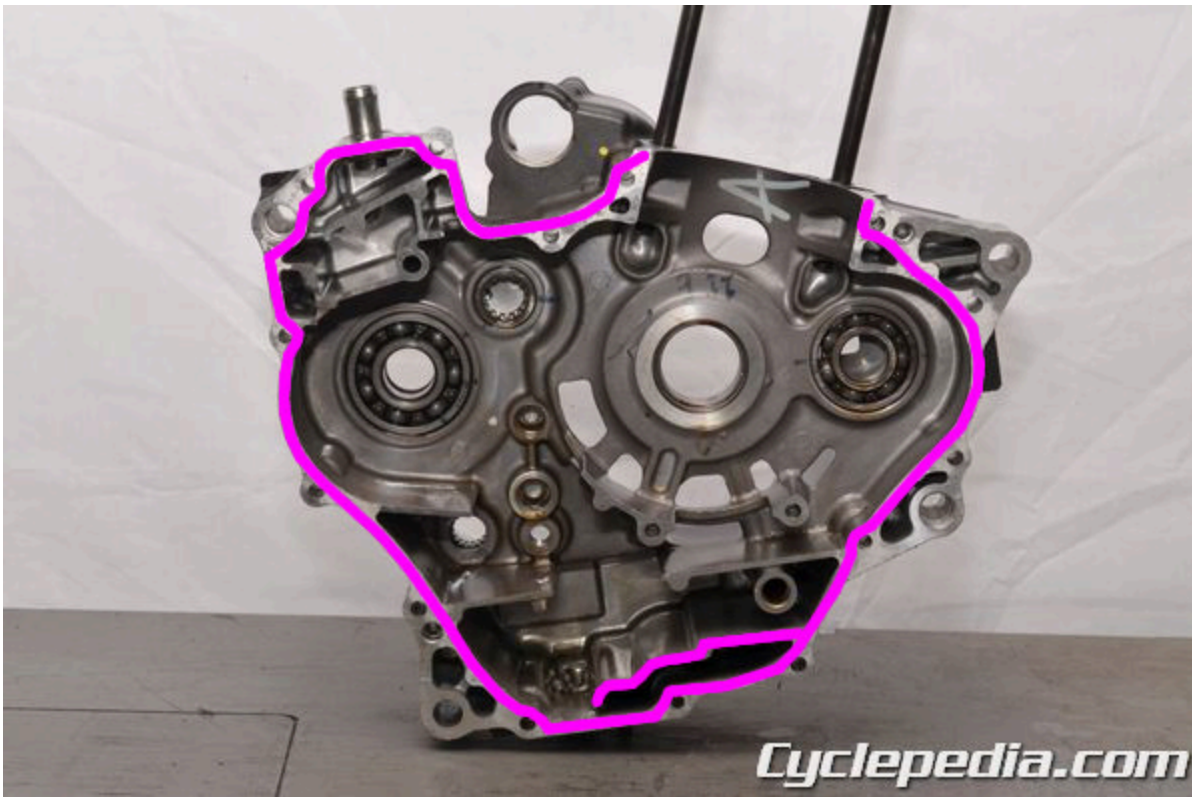




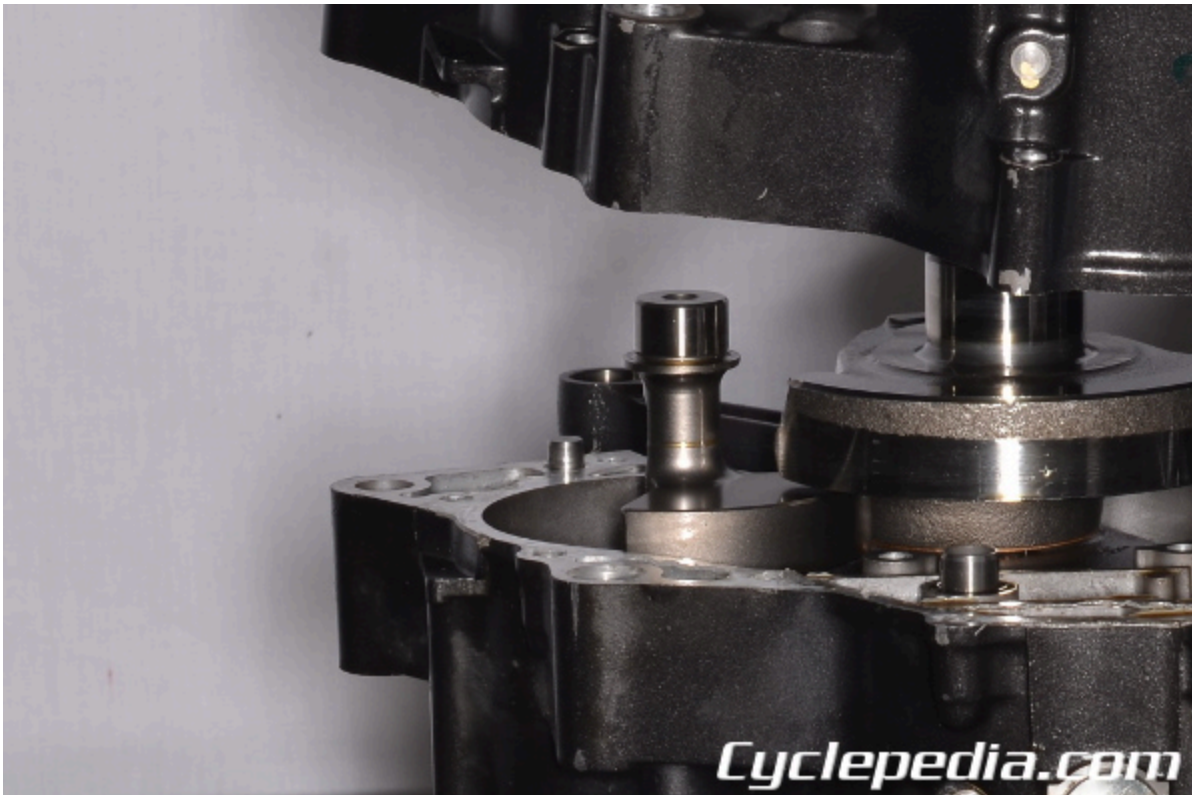
Install the dowel pins.



Install a new O-ring with the large dowel pin. Apply fresh engine oil to the O-ring.



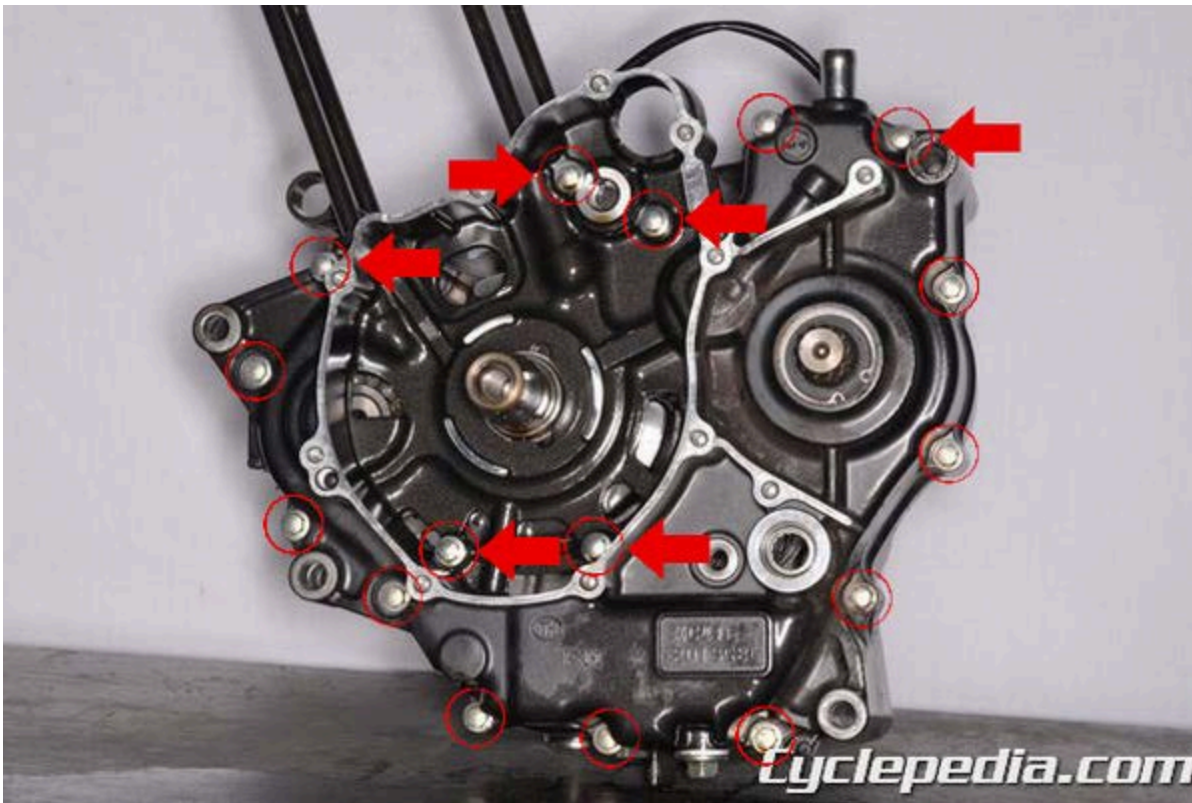
Apply a light but thorough coating of sealant (Three bond 1207B, 1215 or equivalent) to left crankcase mating surface except for the oil passage area.



Set the left crankcase half onto the right. Avoid damaging any of the oil seals.

**WARNING: Do not force the case halves together. If excessive force is required to fit them stop and check for misaligned components.**





Install the crankcase bolts and thread them lightly into their original positions (the longer bolts are marked with arrows in the accompanying photo). Tighten the crankcase bolts evenly using an 8 mm socket and multiple passes of a crisscross pattern.

Install the following components:

Switches <sup>[1]</sup> (gear position switch)

Sensors <sup>[2]</sup> (VS sensor)

Starter Motor <sup>[3]</sup>

Left Side Engine Components <sup>[4]</sup>

Primary Drive Gear <sup>[5]</sup>

Gearshift <sup>[6]</sup>

Oil Pump <sup>[7]</sup>

Clutch Installation <sup>[8]</sup>

Piston and Cylinder <sup>[9]</sup>

Cylinder Head <sup>[10]</sup>

Camshafts <sup>[11]</sup>

Cylinder Head Cover <sup>[12]</sup>

Spark Plug <sup>[13]</sup>

Engine Installation <sup>[14]</sup>

URLs in this post:

[1] Switches: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/switches/>

[2] Sensors: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/sensors/>

[3] Starter Motor: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/starter-motor/>

[4] Left Side Engine Components: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/left-side-engine-components/>

- [5] Primary Drive Gear: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/engine/right-side-engine-components-2/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/engine/right-side-engine-components-2/)
- [6] Gearshift: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/engine/gearshift/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/engine/gearshift/)
- [7] Oil Pump: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/engine/oil-pump/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/engine/oil-pump/)
- [8] Clutch Installation: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/engine/clutch-installation/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/engine/clutch-installation/)
- [9] Piston and Cylinder: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/engine/piston-and-cylinder/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/engine/piston-and-cylinder/)
- [10] Cylinder Head: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/engine/cylinder-head/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/engine/cylinder-head/)
- [11] Camshafts: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/engine/camshaft-and-rocker-arms/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/engine/camshaft-and-rocker-arms/)
- [12] Cylinder Head Cover: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/engine/cylinder-head-cover/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/engine/cylinder-head-cover/)
- [13] Spark Plug: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/spark-plug/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/spark-plug/)
- [14] Engine Installation: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/engine/engine-installation/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/engine/engine-installation/)

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## - Honda CRF300L Service Manual

### Crankshaft and Rod

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### **Suggested Tools and Supplies**

Dial Gauge w/ Magnetic Base

V Blocks

Feeler Gauge Set

Nitrile Gloves

Safety Glasses

## **Removal**

Separate the halves of the crankcase. See the [Crankcase Splitting](#) <sup>[1]</sup> topic for more information.

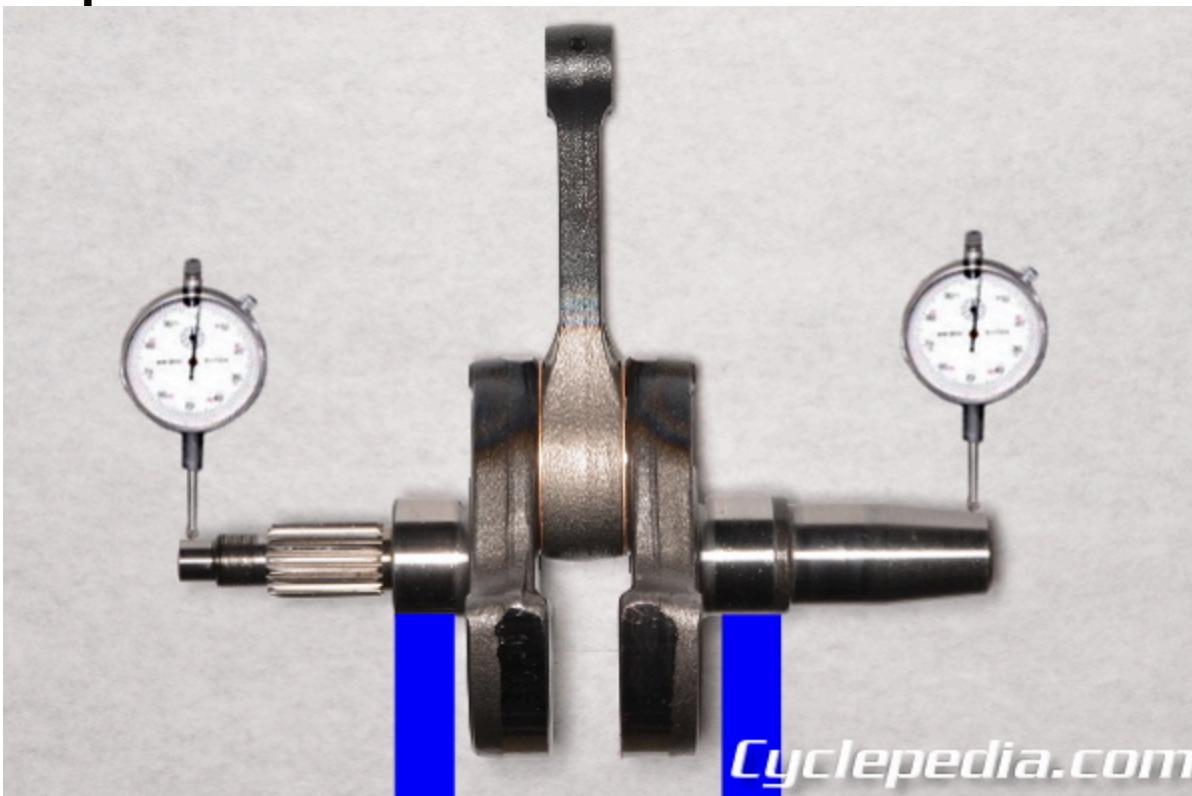


Lift out the balancer shaft.



Remove the crankshaft.

## Inspection



Lay the crankshaft on a pair of V blocks and use a dial indicator with a magnetic base to check the amount of crankshaft runout. Measure the runout at a point 51 mm (2.0 in) out from the crankshaft throw on the flywheel side and 75.5 mm (3.0 in) out from the crankshaft throw on the primary drive side of the crankshaft. Rotate the crankshaft two full revolutions and note the runout. Compare your measurement with the specification.



### Crankshaft Runout

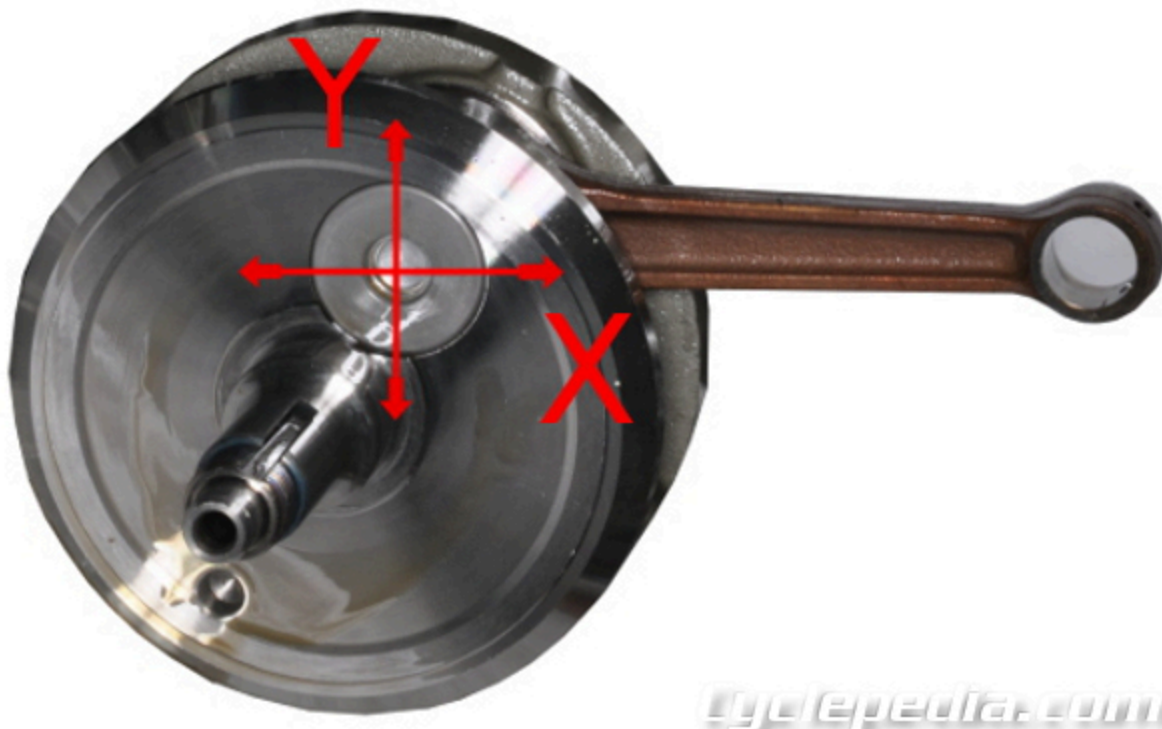
**Right (Primary Side):** 0.03 mm (0.001 in)

**Left (Flywheel Side):** 0.02 mm (0.001 in)

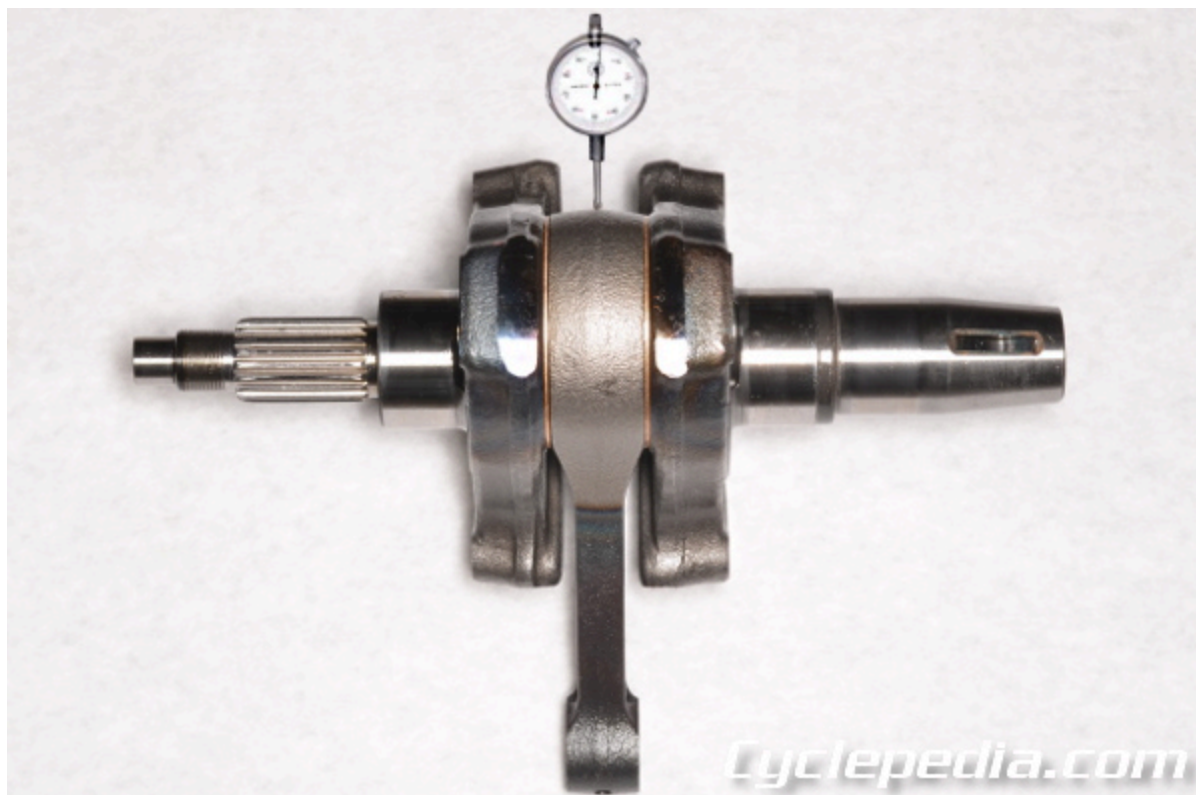


Slide the connecting rod to one side and check the big end side clearance with a feeler gauge. Replace the big end bearing, crank pin and/or connecting rod if it is not within specification.

**Connecting rod big end side clearance:** 0.05 – 0.50 mm (0.002 – 0.020 in) standard, 0.60 mm (0.024 in) limit



Check the big end of the rod for radial play.



Measure the radial play with a dial indicator.

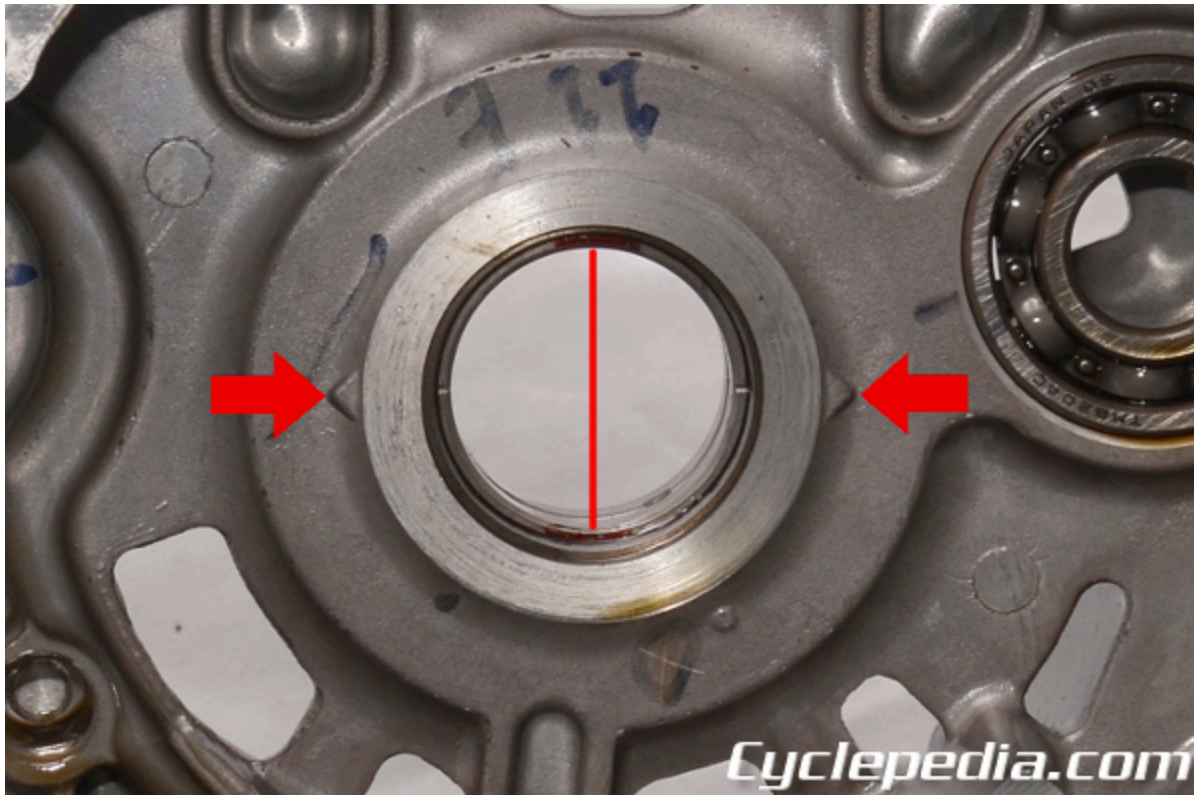
**Connecting rod big end radial clearance:** 0.000 – 0.012 mm (0.000 – 0.0005 in) standard, 0.05 mm (0.002 in) limit

## Crank Bearings





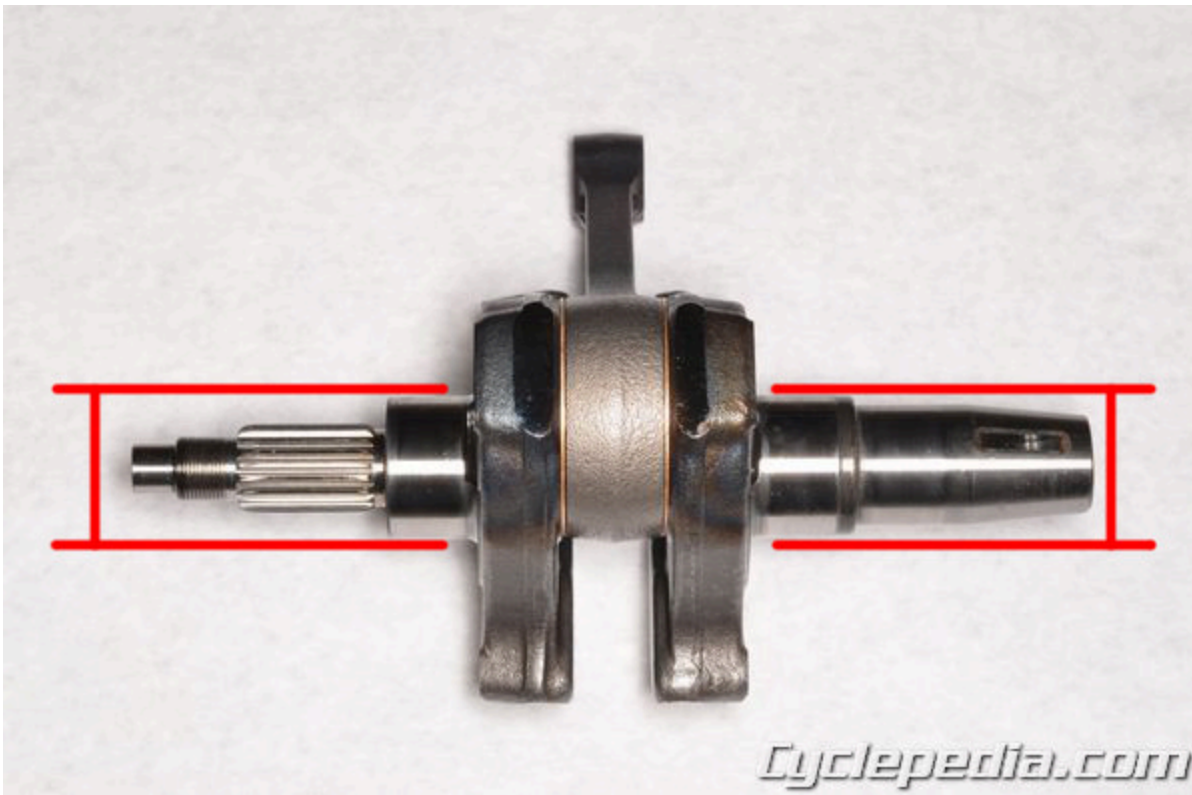
Clean off any oil from the bearings. Check the main journal bearings for unusual wear, damage or peeling and replace them if necessary.



Measure and record the main journal bearing inside diameter at a 90 degree angle to the to the index marks.



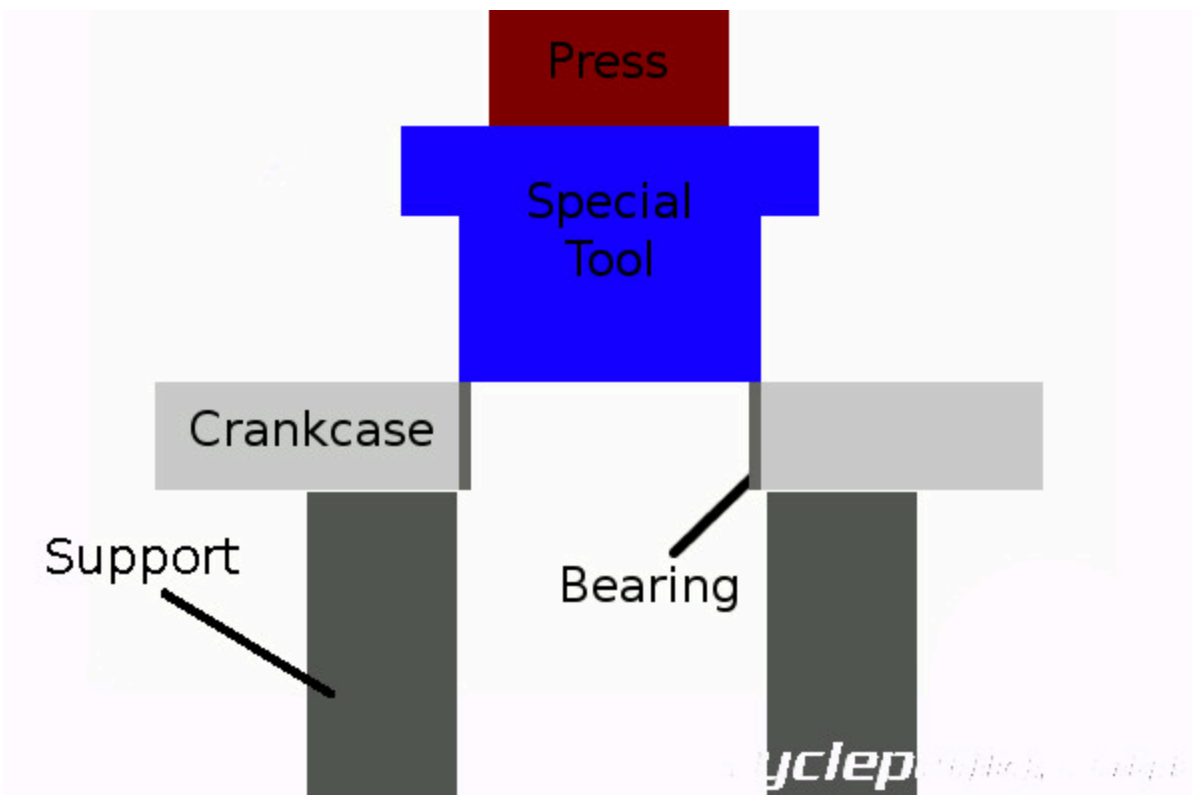
Measure the bearing inside diameter on its flat surface- not inside the oil groove.



Clean away any oil from the crankshaft journals. Measure the outside diameter of the crankshaft journals.

Calculate the oil clearance of the main journal. If the oil clearance service limiting is out of specification replace the components as necessary.

**Crankshaft main journal oil clearance:** 0.018 – 0.045 mm (0.0007 – 0.0018 in) standard, 0.05 mm (0.002 in) limit

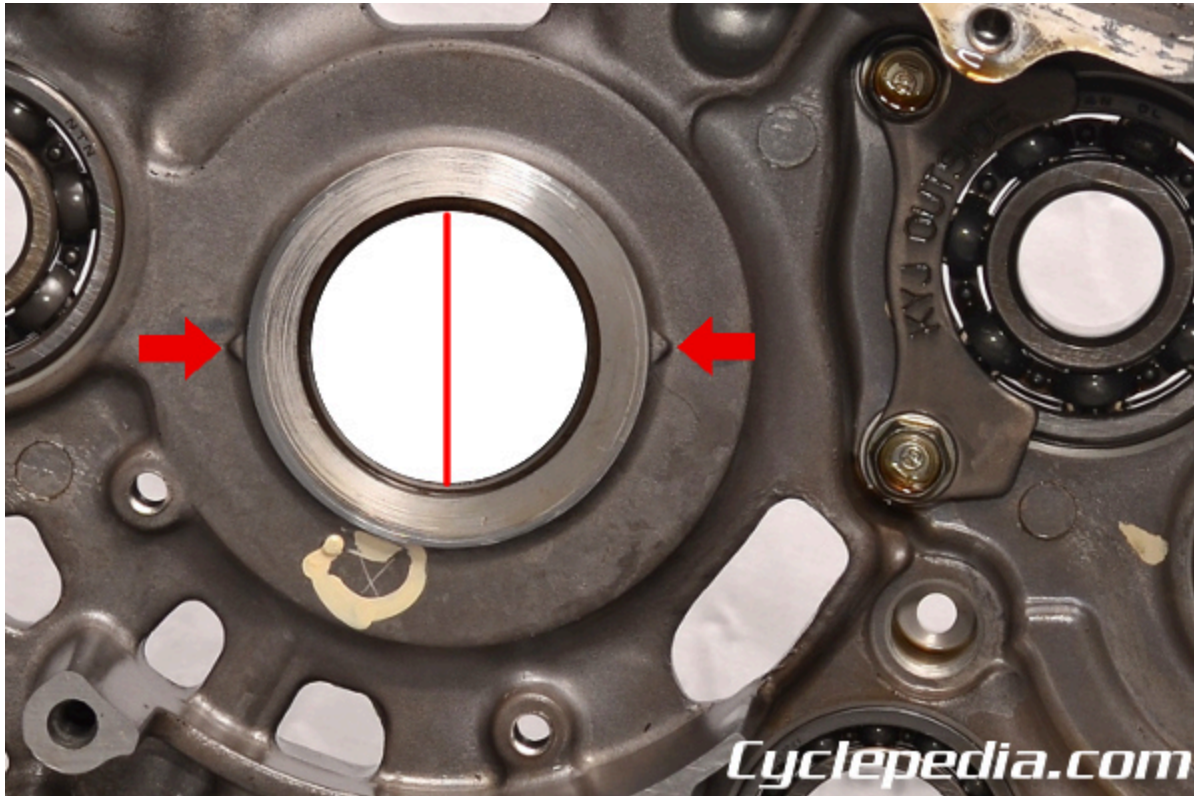




Set a special tool and hydraulic press on the outside of the crankcase.

**Special Tool – Metal Installer Set:** 070MF-KYJ0100

Press the main journal bearings out toward the inside of the crankcase.



Measure and record the main journal bearing support (without the bearing) inside diameter at a 90 degree angle to the to the index marks.

Replace the crankcases if the service limit is exceeded.

**Main journal bearing support I.D. Limit (without bearing):** 38.036 mm (1.4975 in)



Note the A, B, or C code on each crankcase. If there is no code it is possible the case bearing inner diameter was outside the 38.000-38.018 mm limit of the codes. If this is the case, then base bearing selection on the inner diameter measurement.

Cross-reference the crankshaft and crankcase codes to determine the replacement bearing color.

BEARING SUPPORT I.D. CODE (Crankcase replaced)	BEARING SUPPORT I.D.	MAIN JOURNAL O.D.	
		33.985-34.000 mm (1.3380- 1.3386 in) (Crankshaft replaced)	33.975-33.985 mm (1.3376-1.3380 in)
A	38.000-38.006 mm (1.4961-1.4963 in)	C (Brown) 1.996-1.999 mm (0.0786-0.0787 in)	B (Black) 1.999-2.002 mm (0.0787-0.0788 in)
B	38.006-38.012 mm (1.4963-1.4965 in)	B (Black) 1.999-2.002 mm (0.0787-0.0788 in)	A (Blue) 2.002-2.005 mm (0.0788-0.0789 in)
C	38.012-38.018 mm (1.4965-1.4968 in)	A (Blue) 2.002-2.005 mm (0.0788-0.0789 in)	O.S. G (Pink) 2.005-2.008 mm (0.0789-0.0791 in)
-	38.018-38.024 mm (1.4968-1.4970 in)	O.S. G (Pink) 2.005-2.008 mm (0.0789-0.0791 in)	O.S. F (Yellow) 2.008-2.011 mm (0.0791-0.0792 in)
-	38.024-38.030 mm (1.4970-1.4972 in)	O.S. F (Yellow) 2.008-2.011 mm (0.0791-0.0792 in)	O.S. E (Green) 2.011-2.014 mm (0.0792-0.0793 in)
-	38.030-38.036 mm (1.4972-1.4975 in)	O.S. E (Green) 2.011-2.014 mm (0.0792-0.0793 in)	O.S. D (Red) 2.014-2.017 mm (0.0792-0.0794 in)

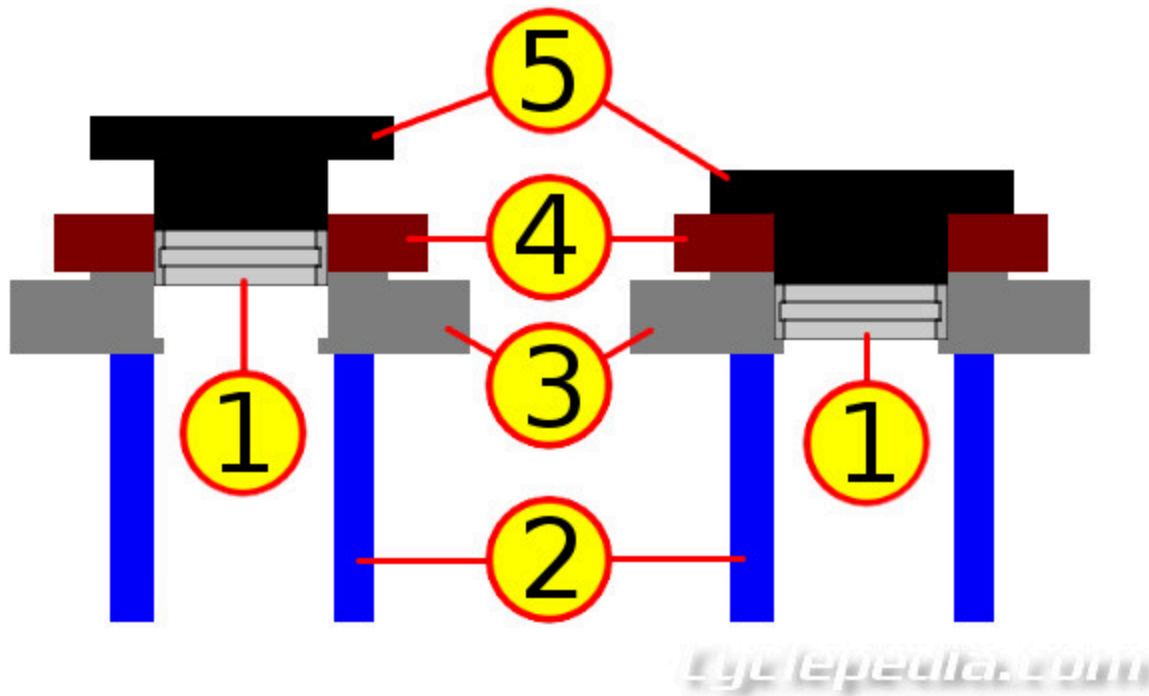
### BEARING THICKNESS

**O.S. D (Red):** Thickest  
**O.S. E (Green):** Thicker  
**O.S. F (Yellow):** Thick  
**O.S. G (Pink):** Middle  
**A (Blue):** Thin  
**B (Black):** Thinner  
**C (Brown):** Thinnest



Apply engine oil to new bearing surface. Set new bearings to the metal installer and tighten the bolts alternately in several steps.

**Special Tool – Metal Installer Set:** 070MF-KYJ0100



Set the bearings (1) and special tools assembly on inside of the crankcase (3), fitting the bearing edge in the crankcase main journal.

Align the mating line of the bearings with the index mark on the crankcase.

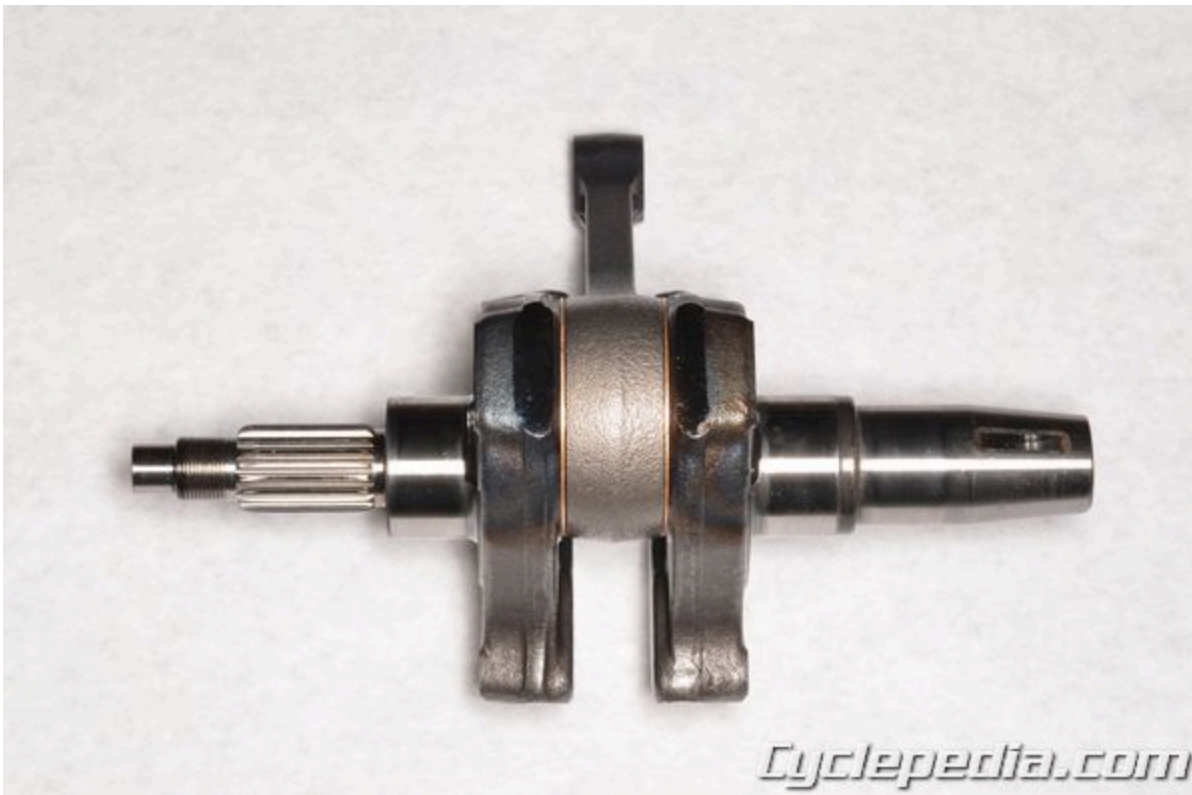
Set the hydraulic press.

Make sure the metal installer (4) mating line aligns with the index mark on the crankcase.

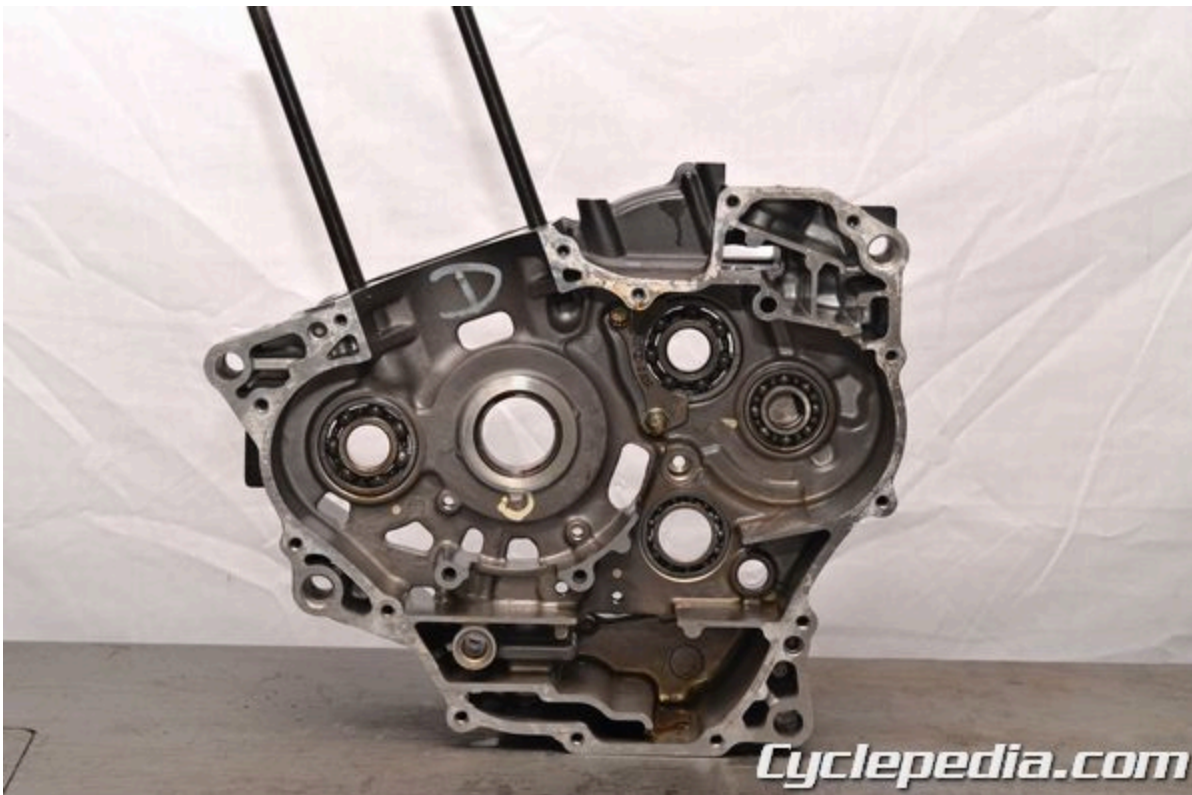
Press the bearings until the metal installer flange (5) is fully seated.

After installing new bearings recheck oil clearances.

## Installation



Apply molybdenum oil solution to the connecting rod big end sliding surface.



Apply molybdenum oil solution to the crankshaft main journal bearing sliding surface. Lubricate the balancer shaft bearings with fresh engine oil.





Install the crankshaft.



Install the balancer shaft.

Assemble the halves of the crankcase. See the Crankcase Assembly <sup>[2]</sup> topic for more information. URLs in this post:

[1] Crankcase Splitting: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/crankcase-splitting/>

[2] Crankcase Assembly: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/crankcase-assembly/>

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## - Honda CRF300L Service Manual

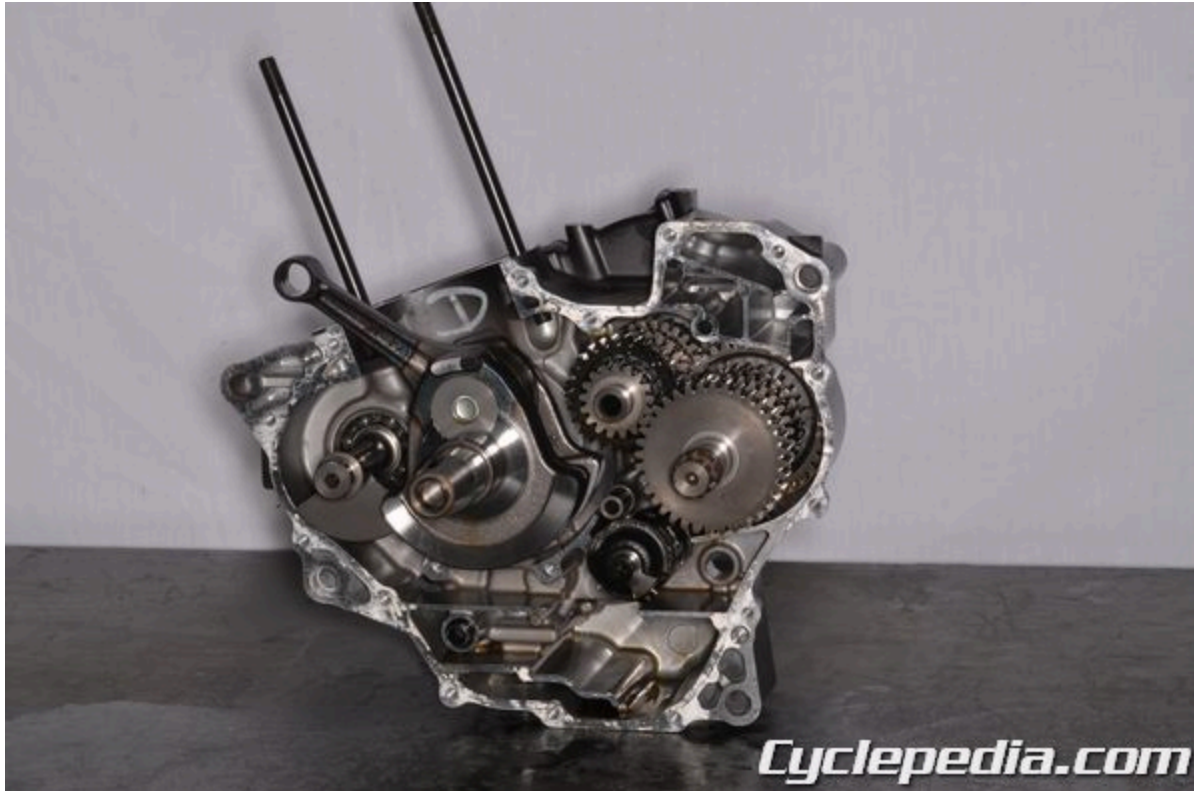
### Transmission

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### **Suggested Tools and Supplies**

Micrometer  
Small Bore Gauge  
Nitrile Gloves  
Safety Glasses

### **Removal**



Split the crankcases. See the [Crankcase Splitting](#) <sup>[1]</sup> topic for more information.

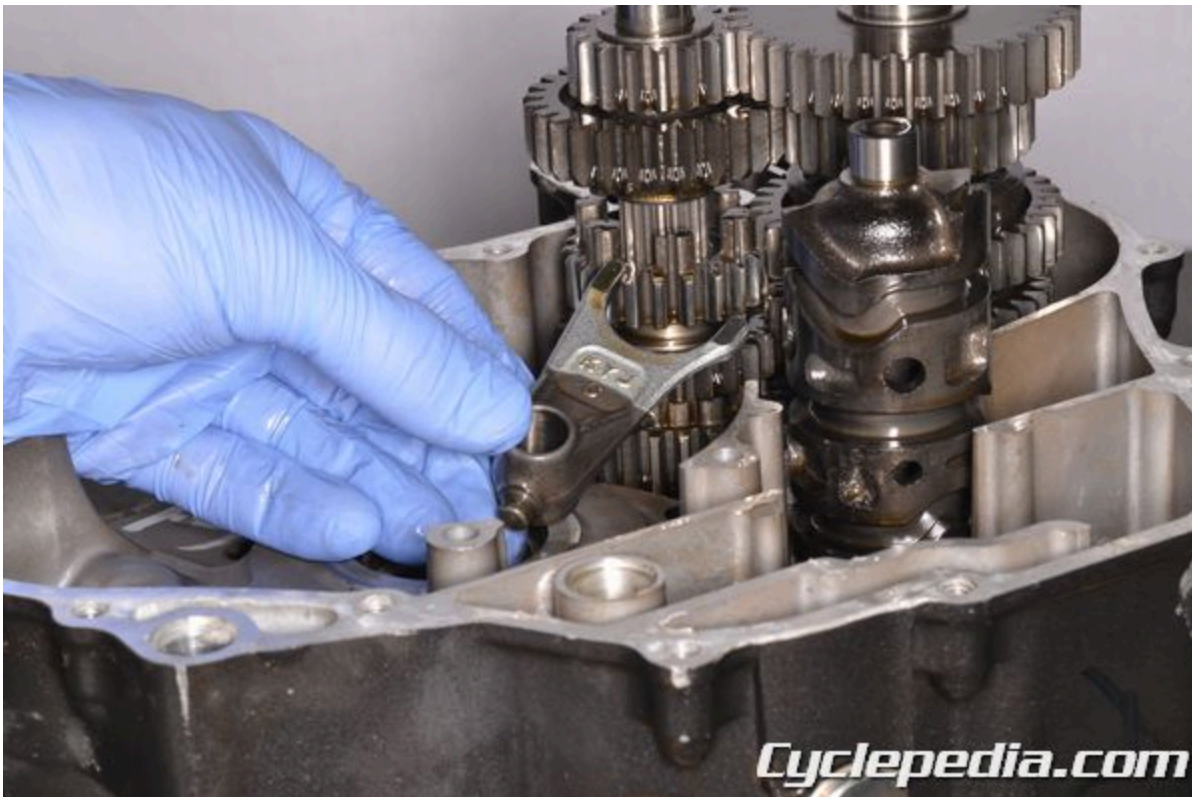


Remove the shift fork shaft.

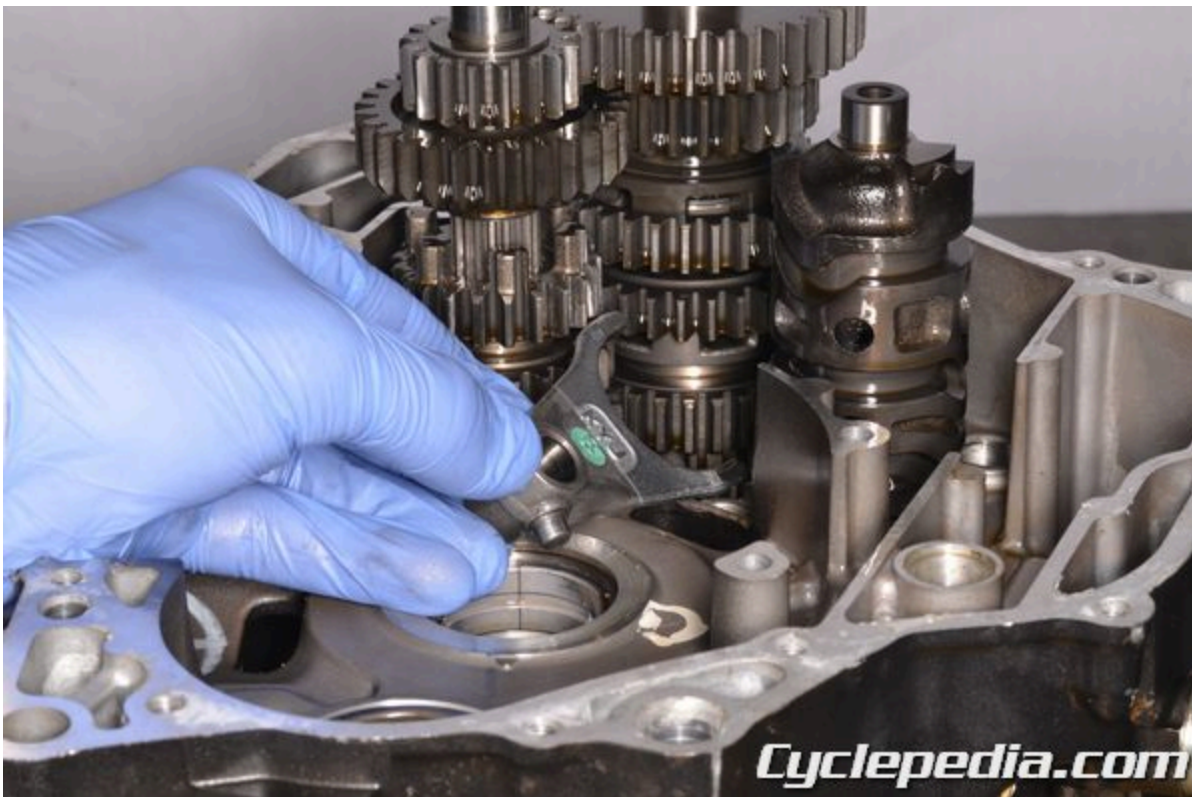


Remove the left shift fork.





Remove the center shift fork.



Remove the right shift fork.

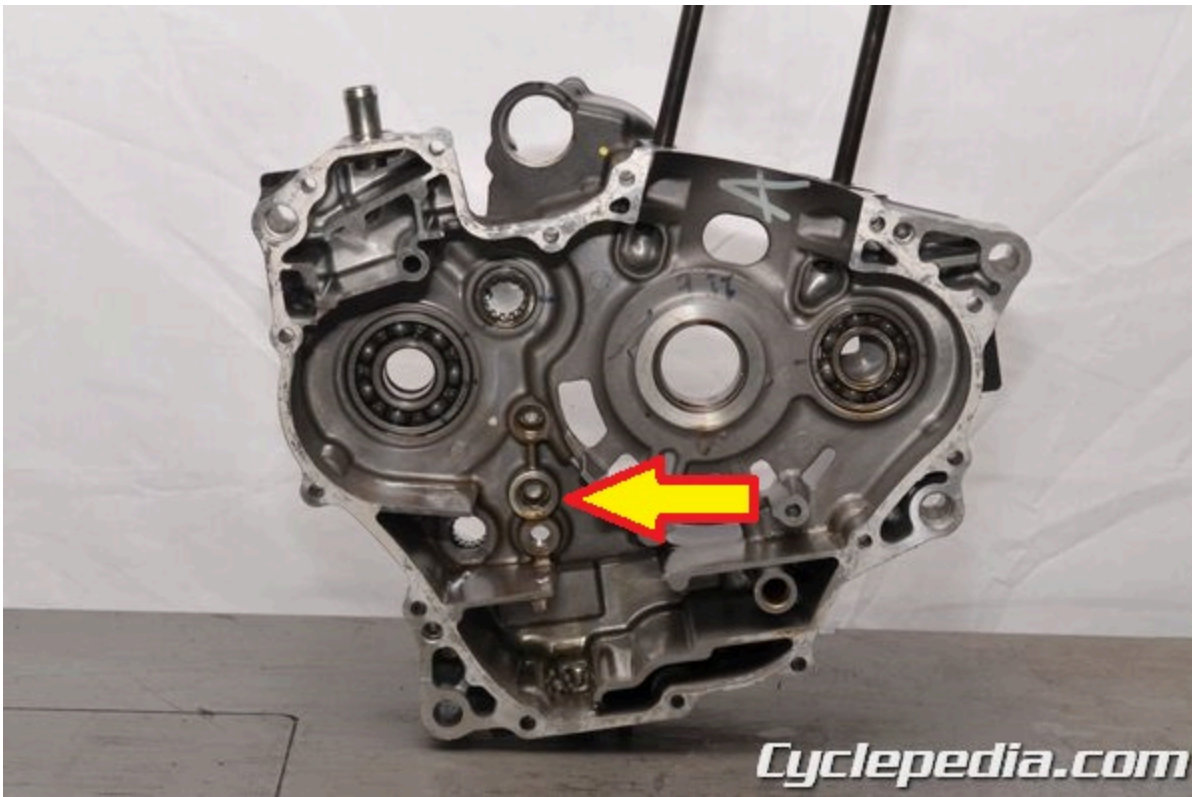


Remove the shift drum.



Remove the transmission shafts together as an assembly.





Inspect the shift drum journal in the left crankcase (arrow) for abnormal wear and measure the inside diameter (compare with specification).

**Shift drum journal inner diameter (left side):** 14.000 – 14.027 mm (0.5512 – 0.5522 in)



Inspect the shift drum for wear and damage, measure the shift drum left end outside diameter (compare with specification).

**Shift drum journal outer diameter (left side):** 13.966 – 13.984 mm (0.5498 – 0.5506 in)



Inspect the shift forks for wear and bending. Measure the inside diameter of the shift fork where the shaft rides. Measure the claw thickness of each shift fork. Compare with specifications.

**Shift fork claw thickness:** 4.93 – 5.00 mm (0.194 – 0.197 in) standard, 4.83 mm (0.190 in) limit

**Shift fork inner diameter:** 12.000 – 12.018 mm (0.4724 – 0.4731 in)



Measure the outside diameter of the shift shaft in the three locations where the forks ride and compare with specifications.



**Shift fork shaft outer diameter:** 11.957 – 11.968 mm (0.4707 – 0.4712 in)



Inspect the crankcase bearings. See the [Crankcase Bearings](#) <sup>[2]</sup> topic for more information.

## Installation

Apply a light coat of engine oil to each part as it is installed. The shift fork inner surfaces and guide pins as well as the shift drum journal and grooves should be lubricated with a moly oil solution.



Install the transmission shafts as an assembly into the right crankcase.

Note: Make sure the mainshaft thrust washer is located on the left side, and the countershaft thrust washers are on both ends.

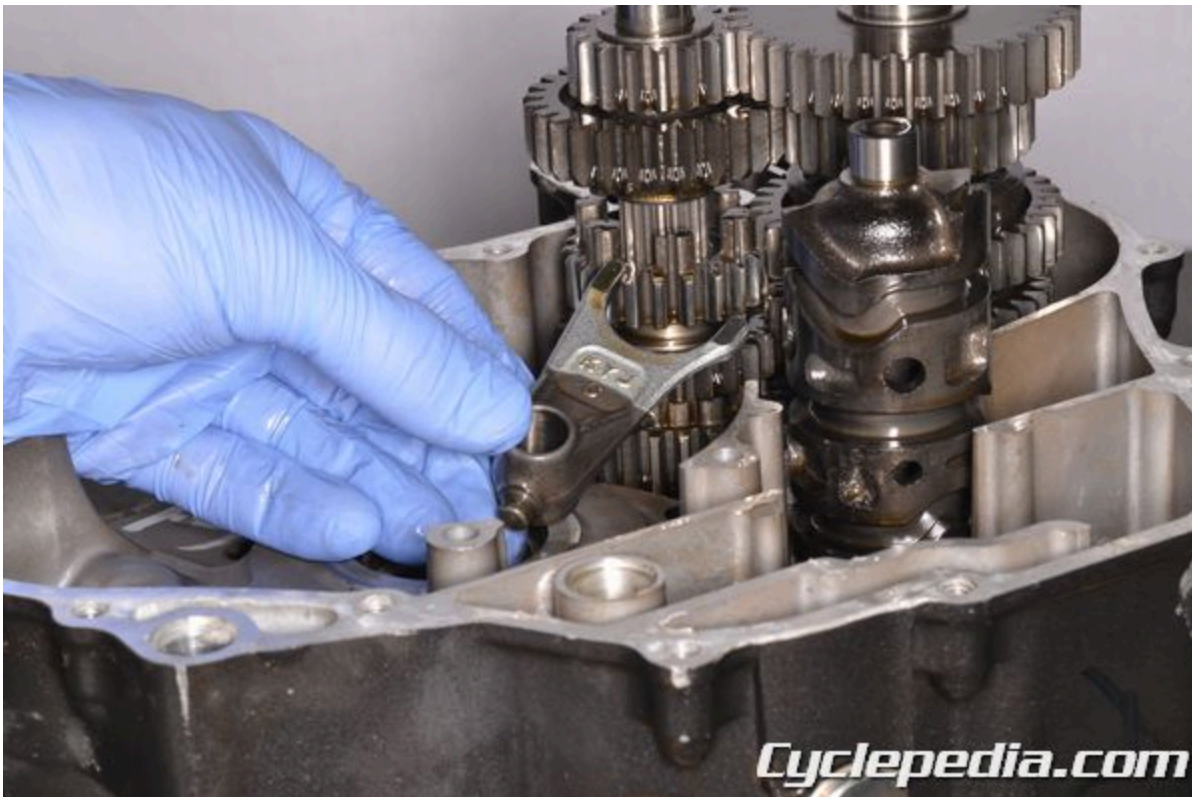


Install the shift drum.



Install the right shift fork with the "R" mark.





Install the center shift fork with the "C" mark.



Install the left shift fork with the "L" mark.



Install the shift shaft.



Assemble the crankcase. See the Crankcase Assembly <sup>[3]</sup> topic for more information. URLs in this post:

[1] Crankcase Splitting: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/crankcase-splitting/>

[2] Crankcase Bearings: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/crankcase-bearings/>



[3] Crankcase Assembly: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/crankcase-assembly/>

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## - Honda CRF300L Service Manual

### Transmission Shafts

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### Suggested Tools and Supplies

Snap Ring Pliers  
Micrometer  
Nitrile Gloves  
Safety Glasses

Remove the transmission. See the [Transmission](#) <sup>[1]</sup> topic for more information.

Apply molybdenum oil to the bushings and splines of all of the gears before installing them onto the transmission shafts.



**Rounded  
Edge**

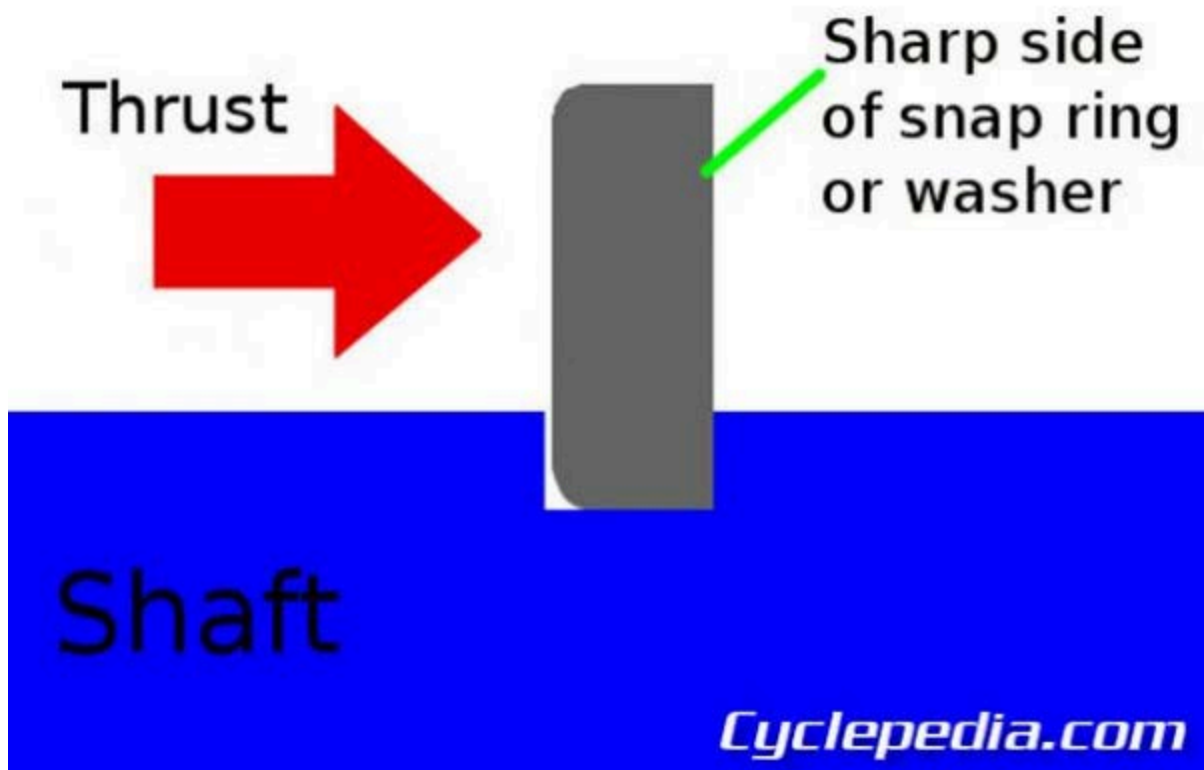


**Sharp  
Edge**

*cyclepedia.com*

Use new snap rings when assembling the transmission shaft components.





Install retaining rings so their ends are fully seated in the splines. Also, the sharp edges of washers and retaining rings should face the same direction of any thrust load.

The proper technique to install a snap ring is to spread it the minimum amount necessary and slide it down the shaft and into its groove. Do not force the retaining ring straight onto the shaft from the side.



Make sure the ends of the snap rings are secure in the splines.



The snap ring ends should not be in the spline gaps.

## **Mainshaft Disassembly**



The mainshaft is the shaft that holds the clutch and transmits the engine's rotation into the gear assembly.





Remove the thrust washer.



Remove the M2 gear (16 teeth).



Remove the washer.



Remove the M6 gear (27 teeth).





Remove the M6 gear bushing.



Remove the spline washer.



Remove the snap ring with snap ring pliers. Discard the snap ring and replace with a new one come assembly.



Slide off the M3/4 gear (20/26 teeth).





Remove the snap ring with snap ring pliers. Again, discard the snap ring and replace with a new one come assembly.



Remove the spline washer.



Slide off the M5 gear (26 teeth).



Slide off the M5 gear bushing.





Slide off the thrust washer.



Inspect the mainshaft, splines, and the integral M1 gear (13 teeth) for wear and damage.



Layout the components to keep track of the order and orientation of the components. Replace the snap rings with new items.

### **Assembly**

Use new snap rings when assembling the transmission shafts.



Install the thrust washer.





Slide on the M5 gear bushing.



Slide on the M5 gear (26 teeth).

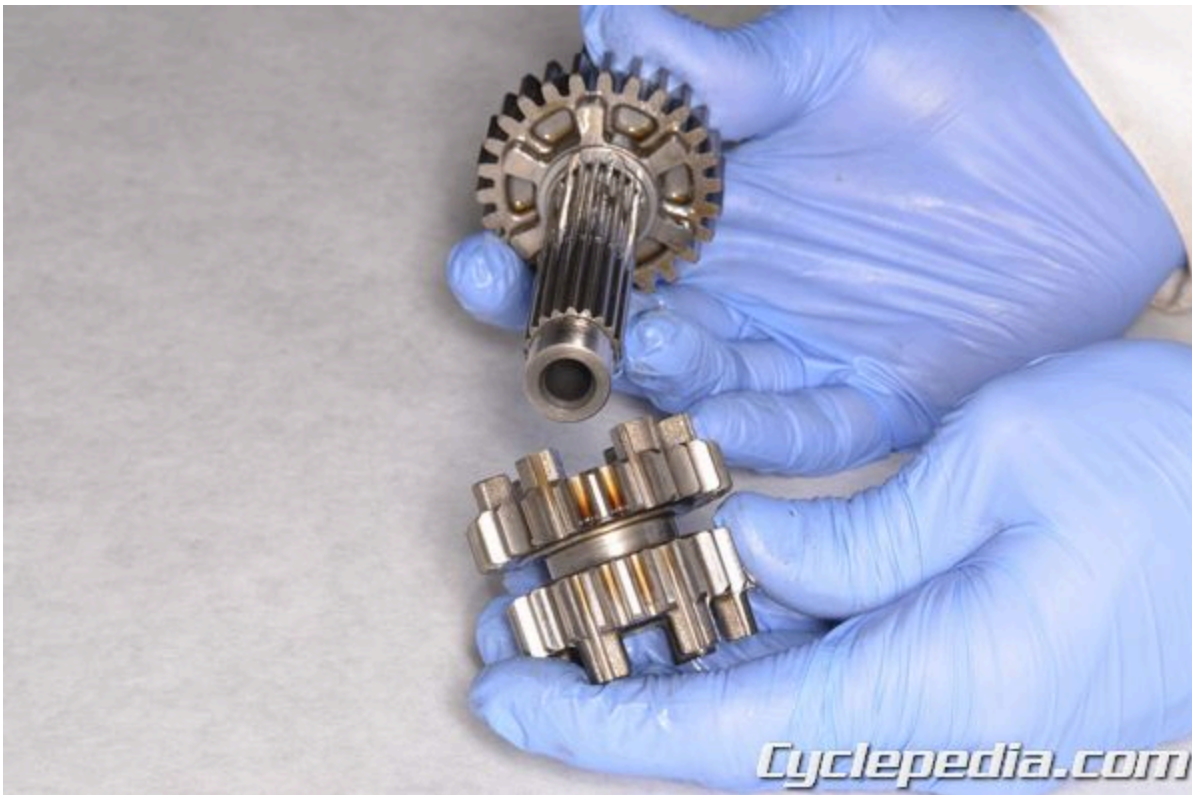


Slide on the spline washer.



Install a new snap ring into its groove with snap ring pliers.





Slide on the M3/4 gear (20/26 teeth).



Install a new snap ring into its groove with snap ring pliers.



Slide on the spline washer.



Slide on the M6 gear bushing.





Slide on the M6 gear (27 teeth).



Slide on the washer.



Slide on the M2 gear (16 teeth).



Install the thrust washer.





Make sure the gears are installed in the correct orientation and that the slide, engage, and spin correctly.

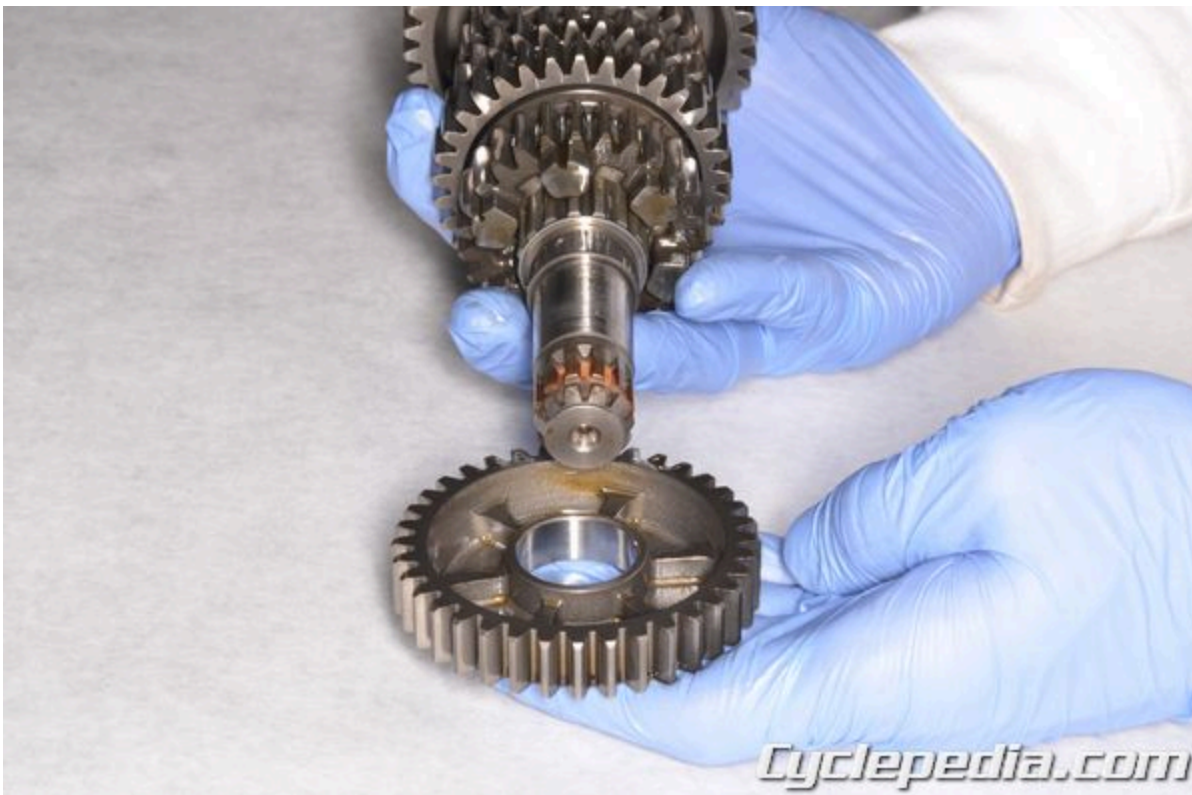
## Countershaft



The countershaft is the shaft that is turned by the mainshaft and then transmits that rotation to the engine (front) sprocket.



Remove the thrust washer.



Remove the C2 gear (36 teeth).

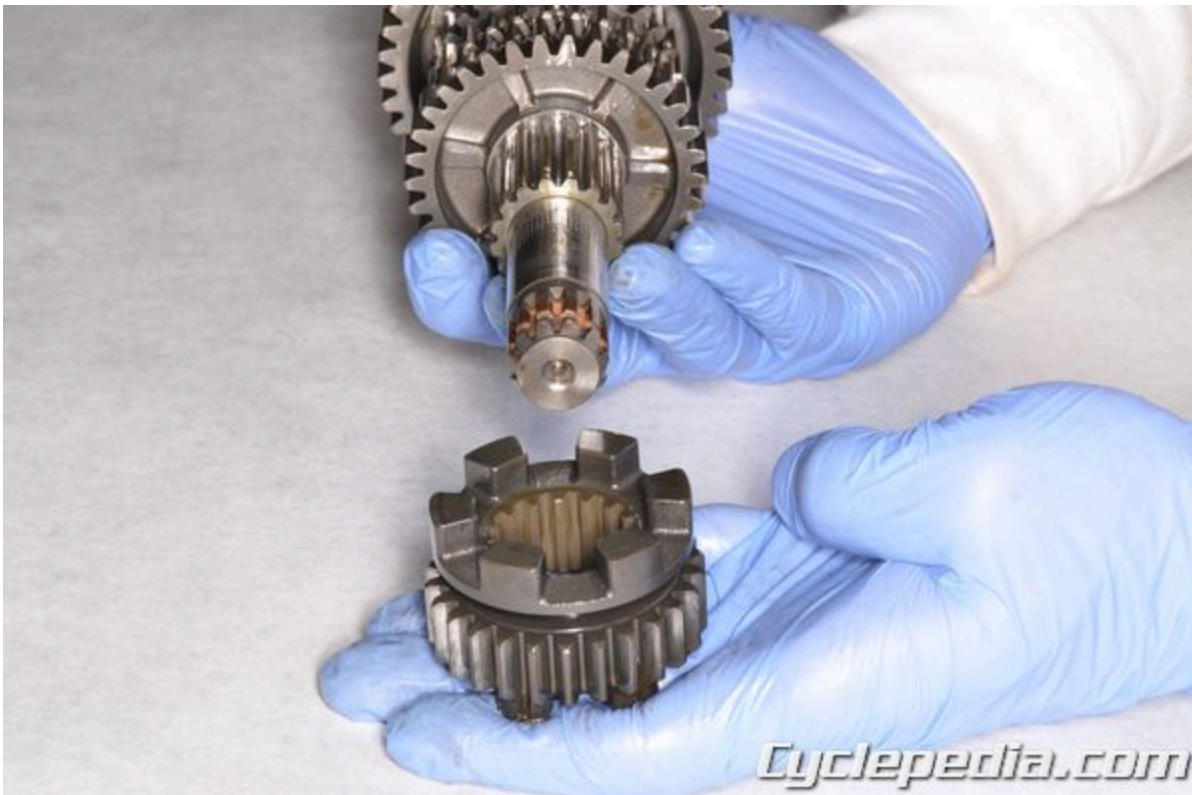




Remove the C2 gear bushing.



Remove the thrust washer.

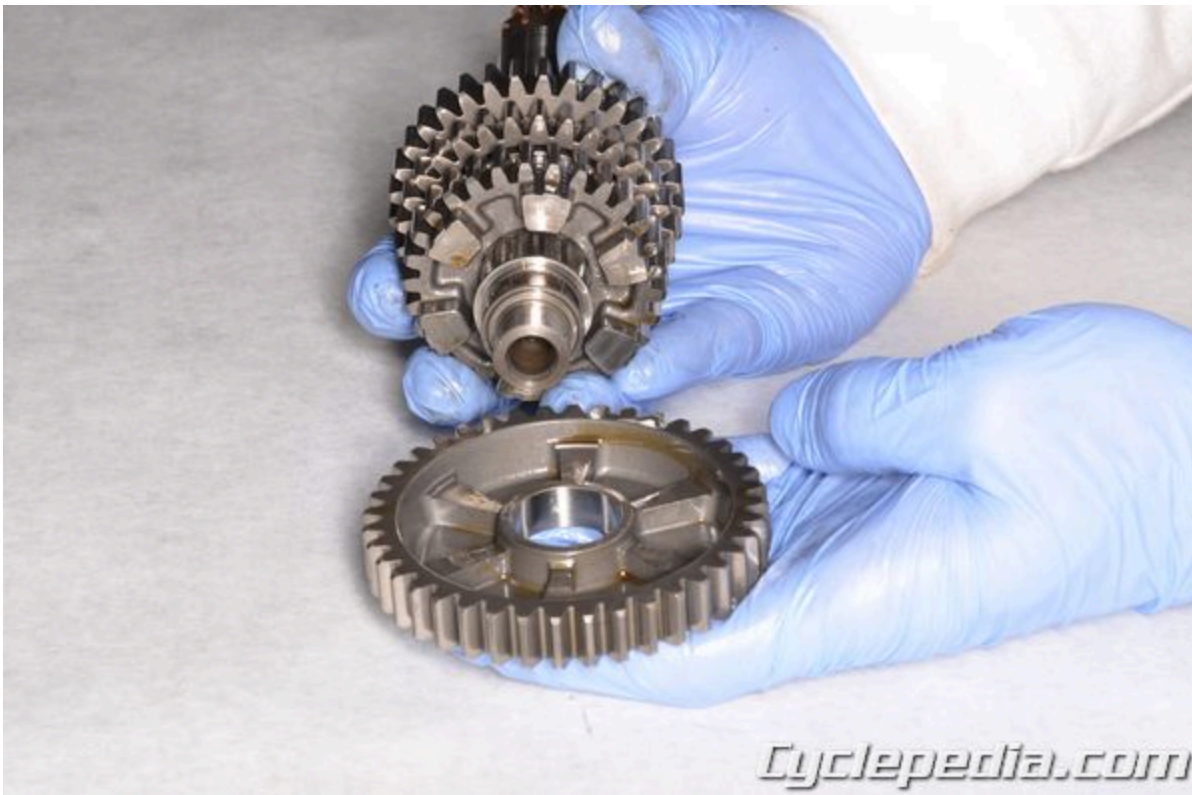


Remove the C6 gear (25 teeth).



Moving to the other end of the shaft, remove the thrust washer.





Slide off the C1 gear (46 teeth).



Slide off the C1 gear bushing.



Remove the thrust washer.



Remove the C5 gear (29 teeth).





Remove the snap ring with snap ring pliers. Discard the snap ring and replace with a new one come assembly.



Remove the spline washer.



Slide off the C4 gear (35 teeth).



Slide off the C4 gear bushing.





Remove the lock washer.



Rotate and free the splined lock washer. Remove the splined lock washer.



Remove the C3 gear (33 teeth).

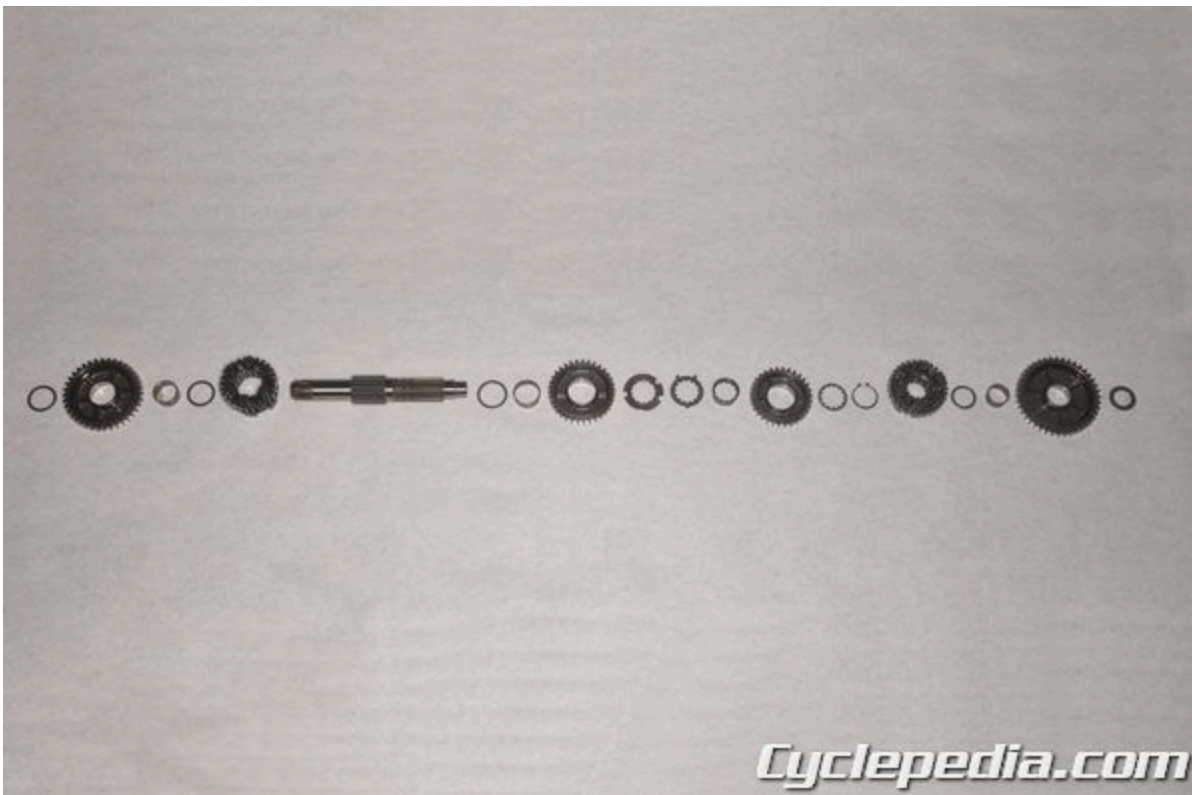


Remove the C3 gear bushing.





Remove the washer.



Layout the components to keep track of the order and orientation of the components. Replace the snap rings with new items.

Inspect the components for damage and wear.

### **Assembly**

Use new snap rings when assembling the transmission shafts.



Slide on the washer.



Slide on the C3 gear bushing.





Slide on the C3 gear (33 teeth).



Slide on the splined lock washer.



Rotate the splined lock washer to secure it in its groove.



Install the lock washer to the splined lock washer.





Slide on the C4 gear bushing.



Install the C4 gear (35 teeth).



Slide on the spline washer.



Install the new snap ring into its groove with snap ring pliers.





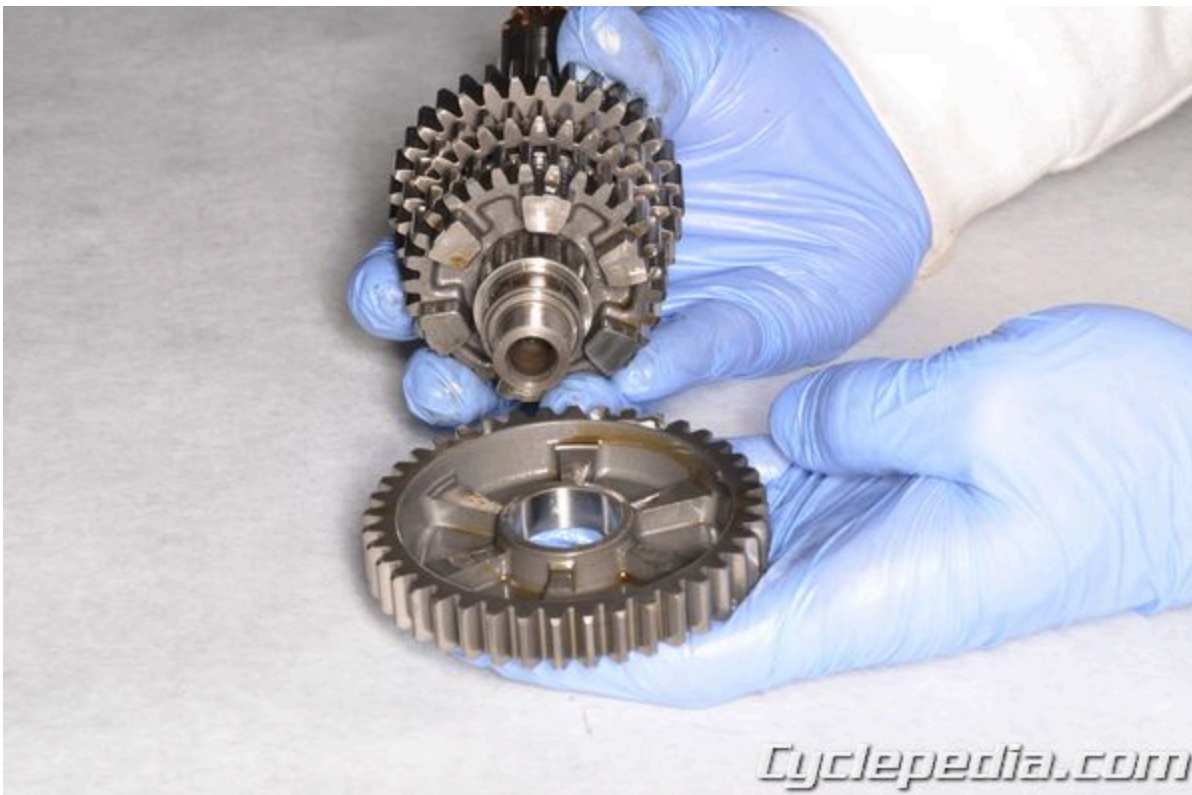
Install the C5 gear (29 teeth).



Install the thrust washer.



Install the C1 gear bushing.

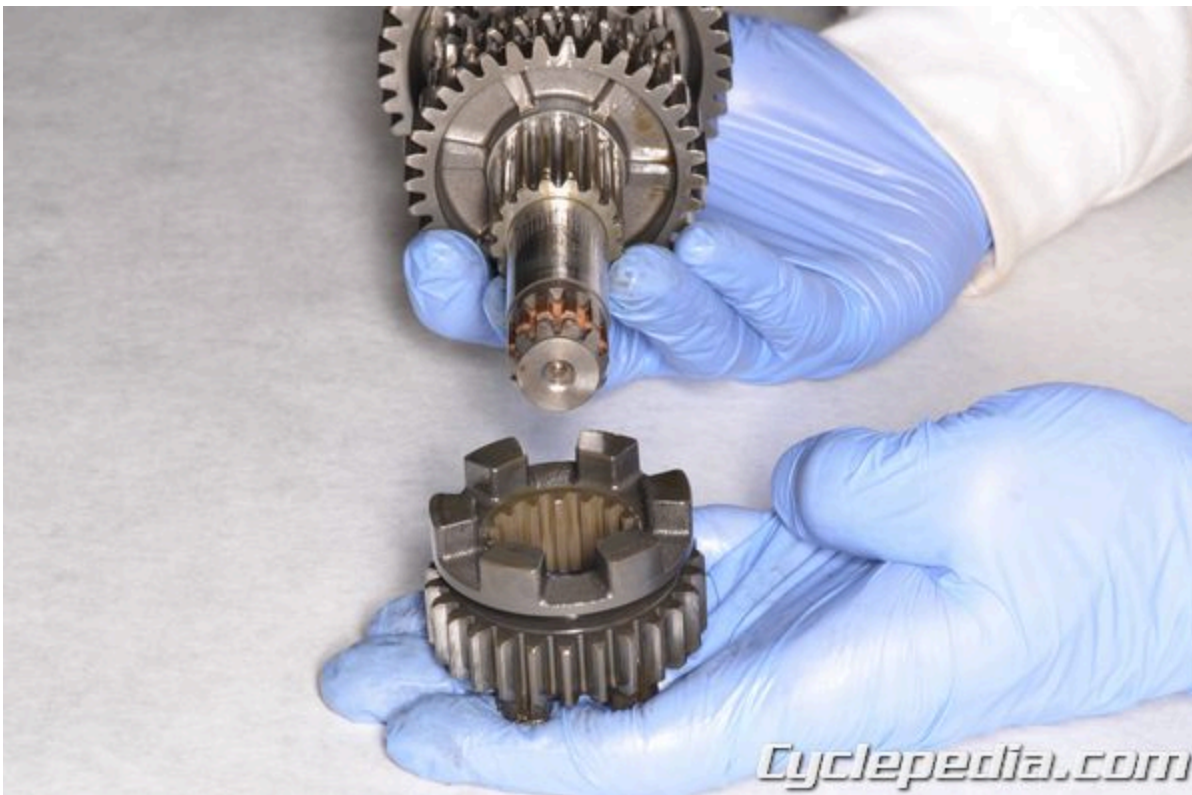


Install the C1 gear (46 teeth).





Install the thrust washer.



Moving to the other side of the shaft, install the C6 gear (25 teeth).

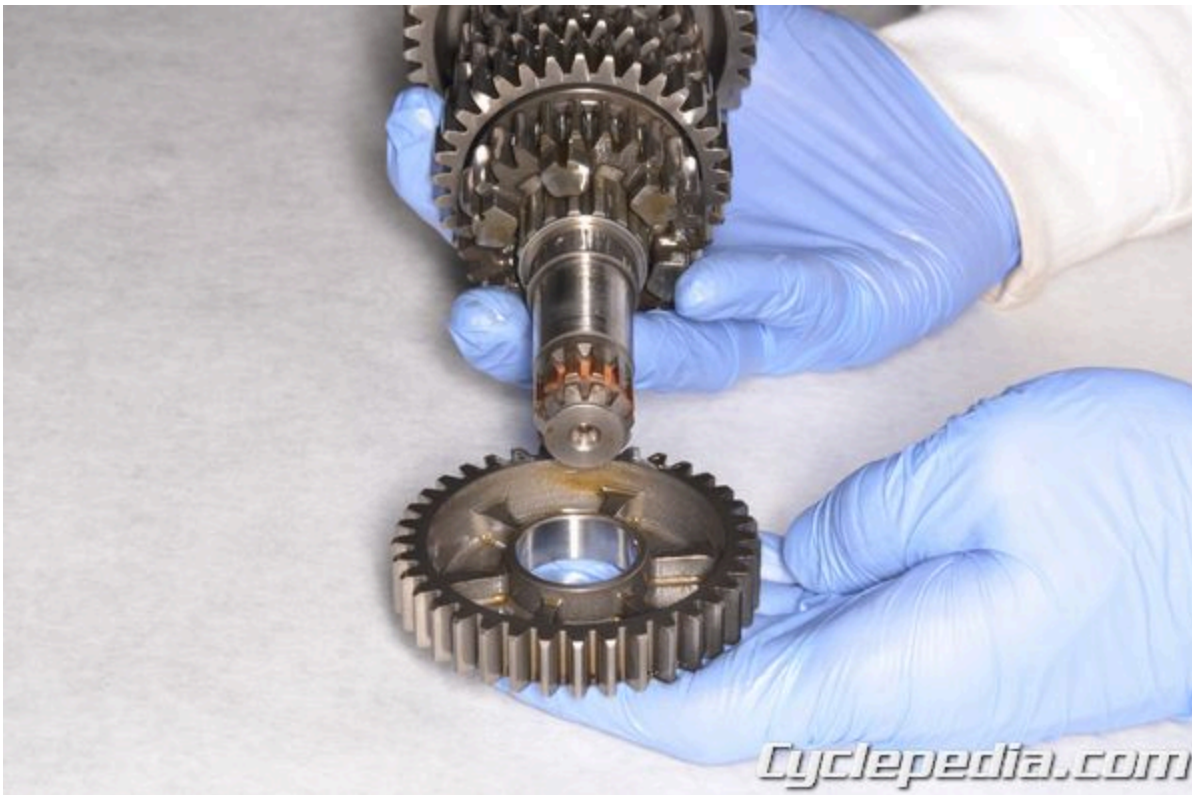


Install the thrust washer.



Install the C2 gear bushing.





Install the C2 gear (36 teeth).



Install the thrust washer.



Make sure the gears are installed in the correct orientation and that the slide, engage, and spin correctly.

Install the transmission. See the [Transmission](#) <sup>[1]</sup> topic for more information.

## Inspection

In addition to checking for obvious signs of wear or damage, the shafts along with their corresponding gear and bushing assemblies should be measured to determine if the gear-to-bushing, and bushing-to-shaft clearances are within specification or if components must be replaced for that reason. See the [Specifications](#) <sup>[2]</sup> for more information.

URLs in this post:

[1] Transmission: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/transmission-removal/>

[2] Specifications: <https://www.cyclepedia.com/manuals/online/cpp-323/quick-reference/specifications/>

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## Drive Chain

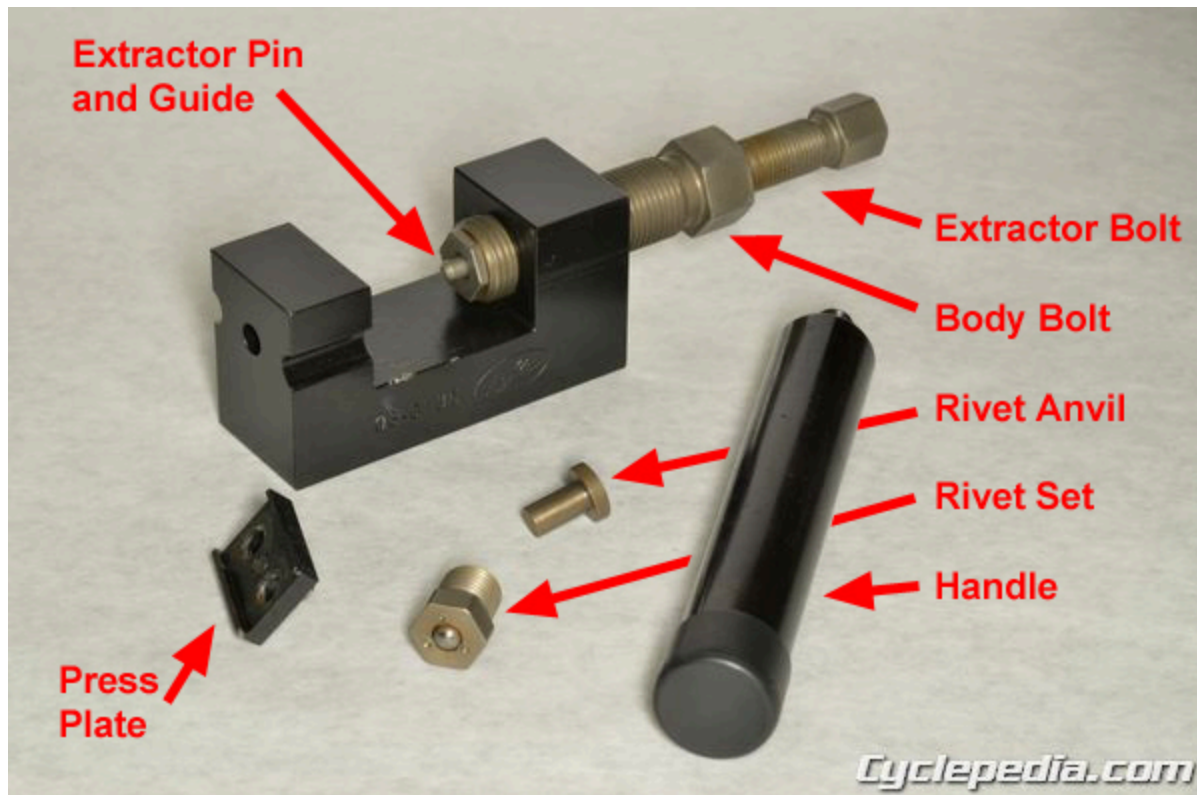
### **SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

Before riding, the drive chain should be checked to make sure that it is adjusted and lubricated [1] properly. When your ride is complete the chain should always be cleaned and re-lubricated. The best time to lube a chain is when it's hot as the lubricant will penetrate the rollers and O-rings better.

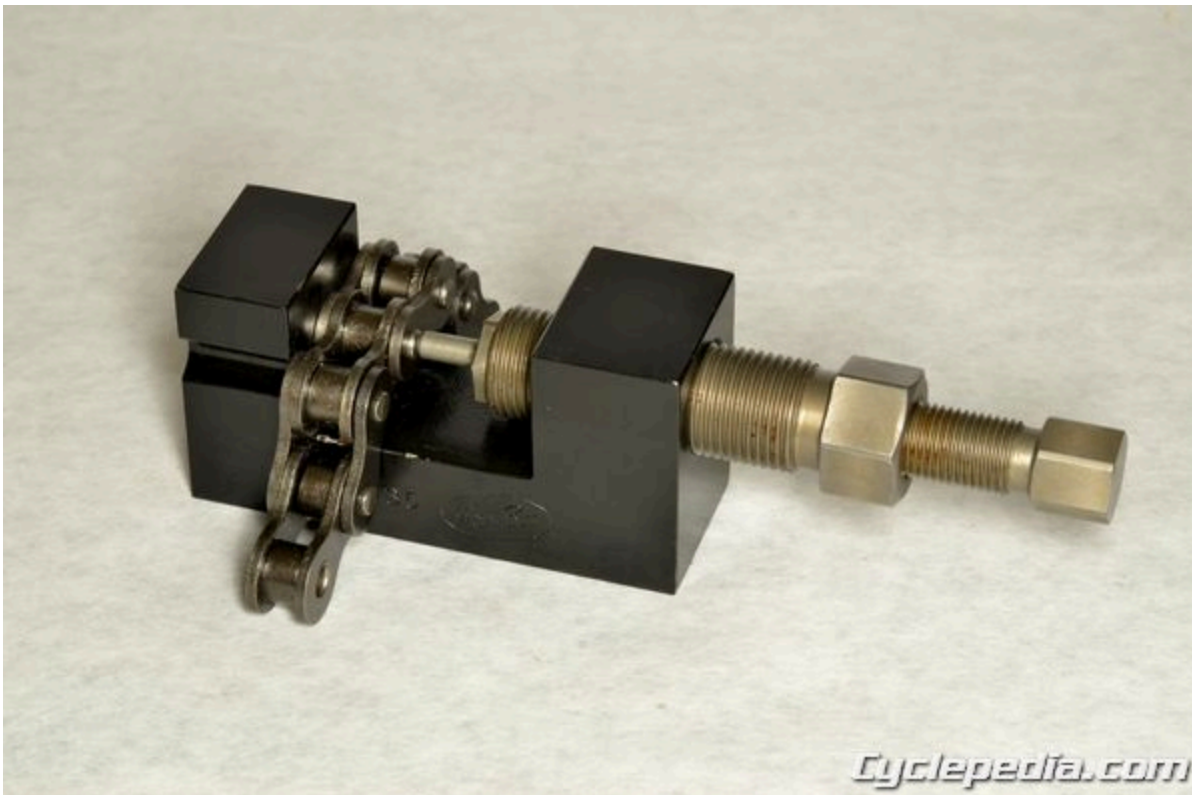
When cleaning the drive chain use a suitable cleaner that will not destroy the O-rings. Pay particular attention not to soak your O-ring chain in the solvent for too long. After a long soak, the solvents can get inside of the O-rings and destroy whatever lubricant remains, while the O-rings can confound your attempts to re-lubricate the chain. It is best to just brush off an O-ring chain with a stiff bristle brush and at most wipe it down with a solvent-soaked rag.

Always use a good chain lube that is recommended for O-ring chains.

An "endless" chain is a factory or dealer-installed chain that does not use a master link. You may hear in passing that an endless chain demands removing the swingarm to replace, but it's not true. "Endless" chains are serviced very similar to a master-link chain. In the process the pins are pressed out of a link, and the old chain is removed. The new chain is then installed to length and a staking tool is used to mushroom the ends of the connecting pins to permanently attach the sideplate to the pins. It's a process that is not much more difficult than dealing with a master link, once you have the right tools.



We used the Motion Pro Jumbo Chain Tool in the demonstration below. Motion Pro tools are commonly available at motorcycle dealerships and they are very high quality.



To remove an "endless" chain, you first have to remove, or "break," a pin.



Fit the chain into the tool so that the extractor pin is aligned with a chain pin. This picture is just for show, in an actual case you would snug the body bolt down onto the chain with a 13/16 wrench so that the pin would not be visible. Then tighten the extractor bolt with a 9/16 wrench until the chain pin is pushed out.





The chain pin will fall out of the hole in the back of the extractor tool. Remove the tool, separate the links, and remove the chain from the bike.



The replacement link should be assembled as shown: From left – master link, O-ring, chain rollers, O-ring, side plate. This photo shows a typical clip-type master link, where an actual “endless” master link would not have a clip groove.

The Motion Pro tool as pictured is made to stake the links of a hollow point master link, which is identified by the presence of a dimple in the end of the link pin. A number of aftermarket chain

manufacturers make replacement chains with solid, hardened pins that require a different rivet set and anvil for this tool. The part number from Motion Pro is 08-0142, and it's called a Quad Stake kit.



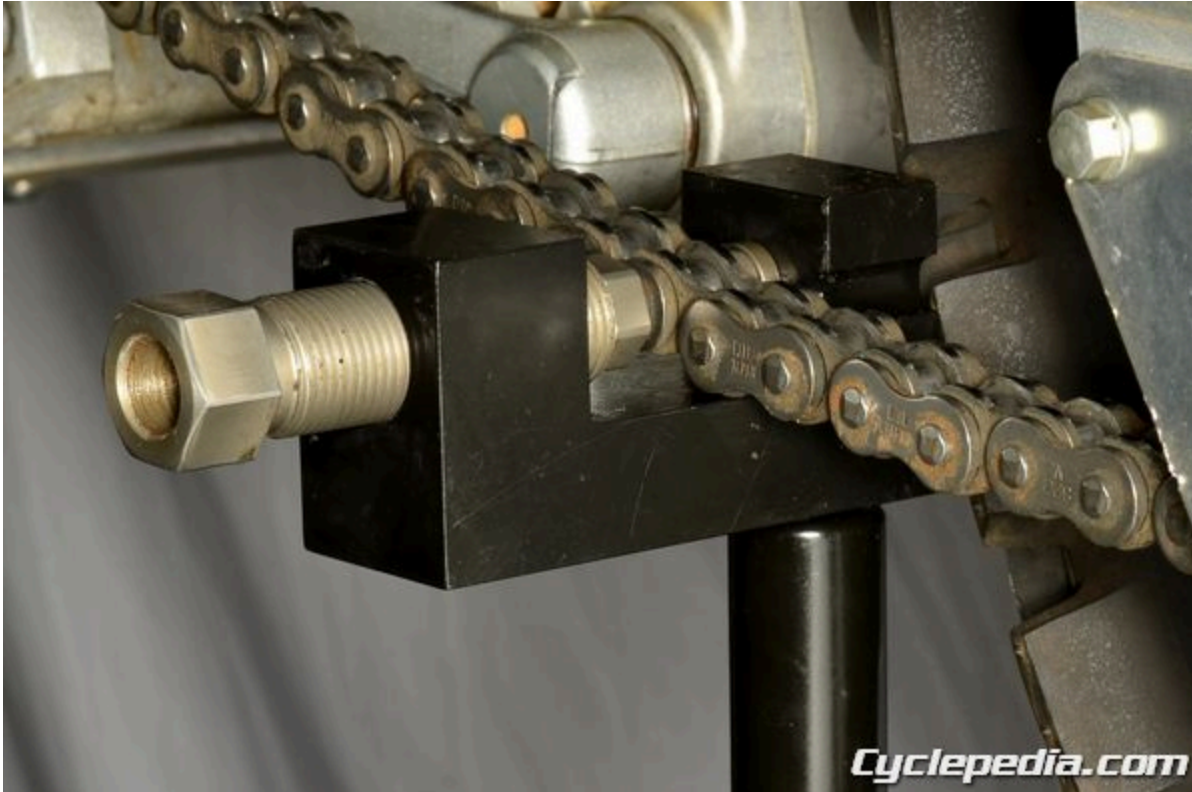
To attach a master link, grease is applied to the chain and the master link side plate, and the press plate is installed in the tool. Tighten the body bolt with a 13/16 wrench and press the plate onto the pins of the master link. The chain manufacturer will specify a height to which the pins should protrude from the side plate of the master link when properly pressed on.





Determine either the width of the assembled link (shown) or the height of the pressed-on link, depending on the specification provided, by measuring with a Vernier caliper. For the OEM chain (DID520VF-106LE) the proper specification is a link height (length) above the side plate of **1.3 – 1.5 mm (0.05 – 0.06 in.)**, but it is important to have the chain manufacturer's actual recommendation for this if using an aftermarket chain. When the link is pressed on properly, you can finish the installation by staking the master link.

Note: When using link height use the caliper to measure the height (length) of the pin above the link instead of the width of the whole link.



Assemble the tool with the rivet set mounted in the end of the body bolt, and the anvil plate in the body hole of the chain tool. Tighten the body bolt with a 13/16 wrench and watch the pin head mushroom. Remove the tool and measure as you go, since the amount of mushrooming allowed on the master link pin is also dictated by the chain manufacturer.



The staked head of the link pin should mushroom out smoothly and evenly. Examine the finished link closely. If there is any cracking in the staked area remove the link and install a new master link, O-rings and plate. Check with the chain manufacturer for the diameter of the staked area. Again, when using the OEM chain this dimension should be as follows:

**DID (520VF-106LE):** 5.50 – 5.80 mm (0.05 – 0.06 in)

URLs in this post:

[1] adjusted and lubricated: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/drive-chain-adjustment/>

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## - Honda CRF300L Service Manual

### Engine Sprocket

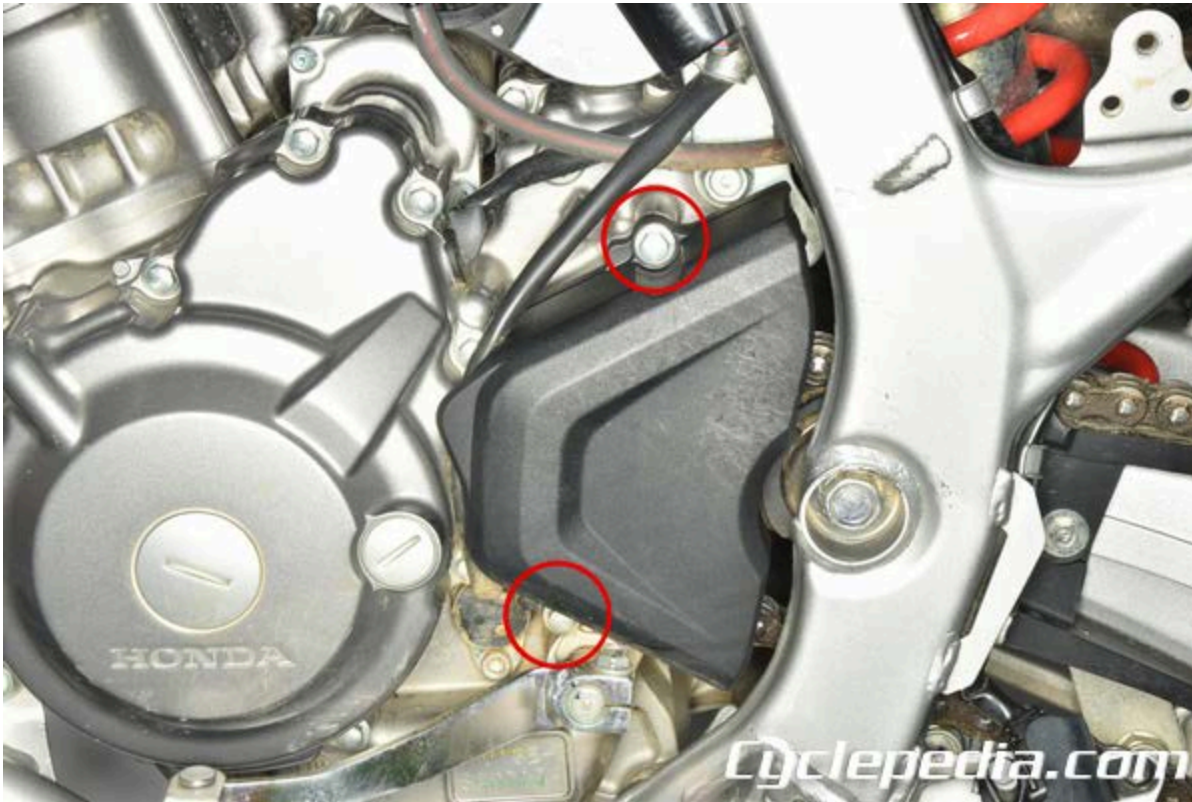
**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### Suggested Tools and Supplies

8 mm Socket  
10 mm Socket  
Ratchet  
Torque Wrench  
Small Flat Blade Screwdriver or Seal Pick (seal replacement)  
Snap Ring Pliers (seal replacement)  
Seal Driver Set and Hammer (seal replacement)  
Nitrile Gloves  
Safety Glasses

### Engine Sprocket Removal

Adjust the drive chain to the maximum amount of free play. See the [Drive Chain Adjustment](#) <sup>[1]</sup> topic for more information.



Remove the drive sprocket cover bolts with an 8 mm socket.

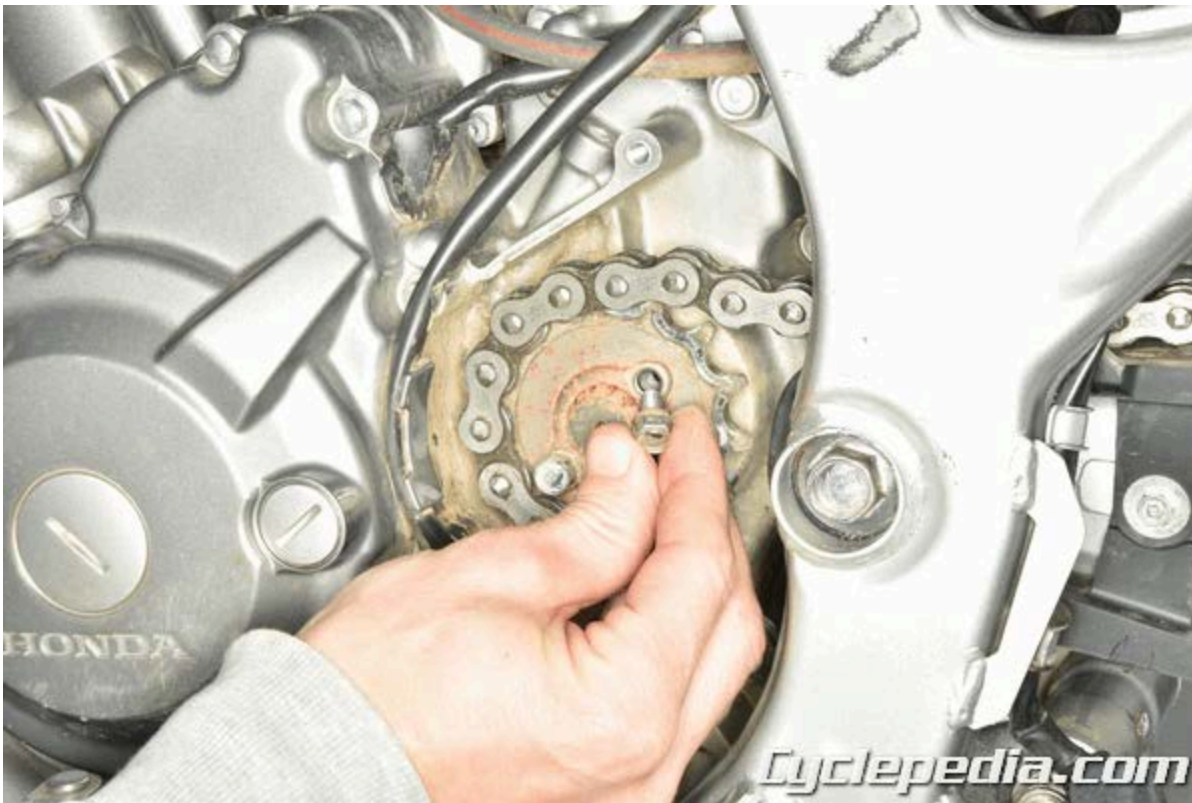


Remove the drive sprocket cover.



Loosen the drive sprocket mounting bolts with a 10 mm socket.





Remove the plate bolts.



Rotate the mounting plate to align the splines.





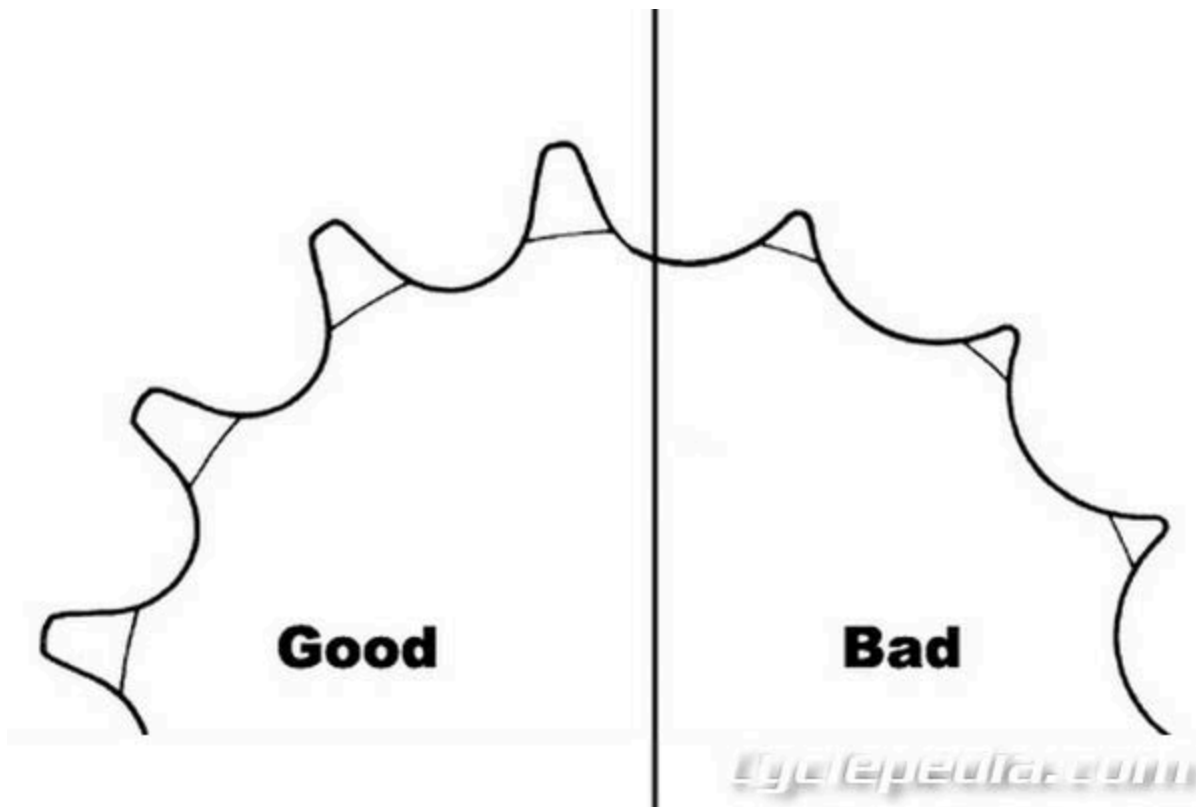
Then pull the plate free from the counter shaft.



Remove the drive sprocket.

## **Engine Sprocket Inspection**





When checking the sprockets for wear look at the amount of material that has been lost from the teeth. If the sprocket is worn by more than  $\frac{1}{4}$  of a tooth, replace the sprocket.



Also if the teeth are hooked or broken, a new sprocket is necessary. If the sprocket is bad, it is best to replace both sprockets and the chain with new parts all at the same time.

## Countershaft Seal Replacement



Inspect the seal for signs of weeping, wear, or other damage. If seal replacement is necessary, remove the snap ring with snap ring pliers.

Use a seal pick or small flat blade screwdriver to remove the countershaft seal. Avoid damaging the case or shaft.

Apply grease to the lips of the new seal and fit the seal into place. Press in the seal by hand in with an appropriate driver or a socket with the same outside diameter of the seal.

Install a new snap ring into the groove to secure the seal.

## **Engine Sprocket Installation**





Install the drive sprocket into the chain and onto the countershaft.

Note: On OEM sprockets so equipped make sure the stamping/ID marks are facing outward.

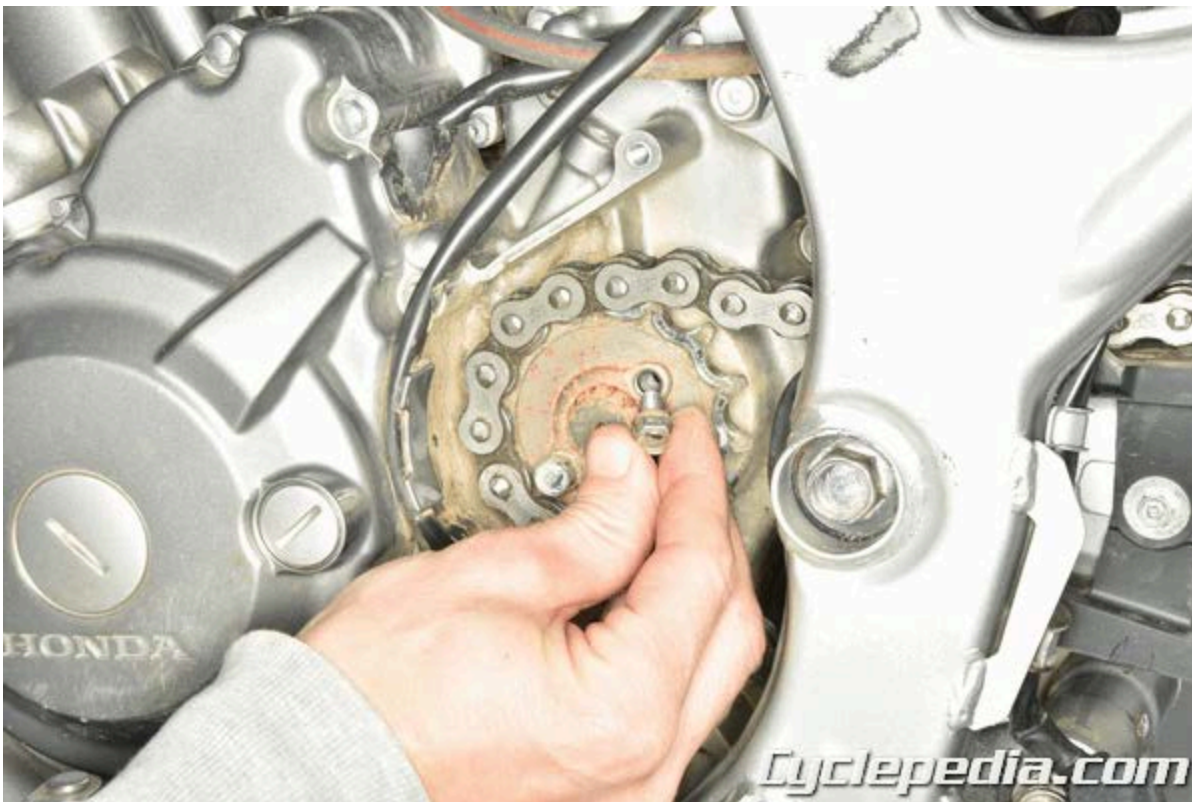


Install the mounting plate over the splines and into the shaft groove.





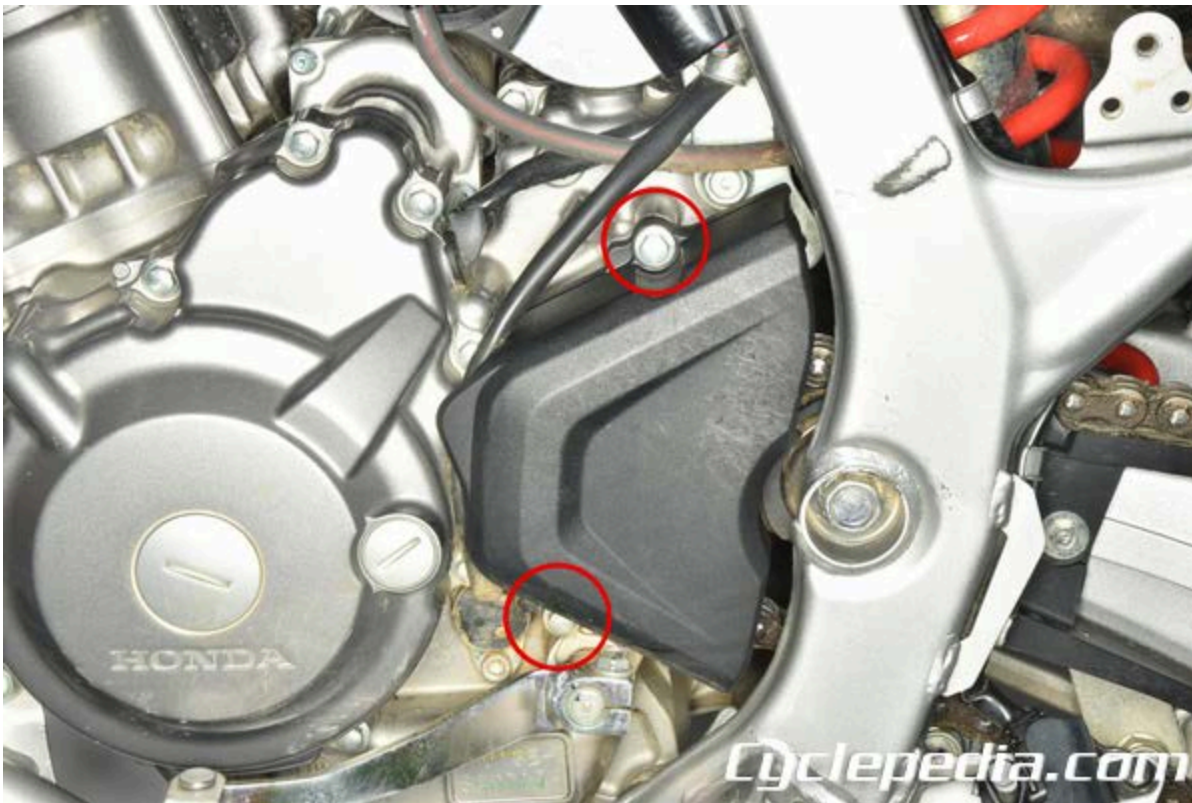
Rotate the fixing plate to align the bolt holes.



Install the mounting bolts and tighten to specification using a 10 mm socket.

**Drive sprocket fixing plate bolt:** 10 N-m (1.0 kgf-m, 7.0 ft-lb)





Install the drive sprocket cover and tighten the bolts securely.

Adjust the drive chain. See the [Drive Chain Adjustment](#) <sup>[1]</sup> topic for more information. URLs in this post:

[1] Drive Chain Adjustment: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/drive-chain-adjustment/>

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## - Honda CRF300L Service Manual

### Rear Wheel Sprocket

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### Suggested Tools and Supplies

5 mm Hex Driver

14 mm Wrench

Ratchet

Torque Wrench

Nitrile Gloves

Safety Glasses

## Removal

Remove the rear wheel for access. See the [Rear Wheel](#) <sup>[1]</sup> topic for more information.



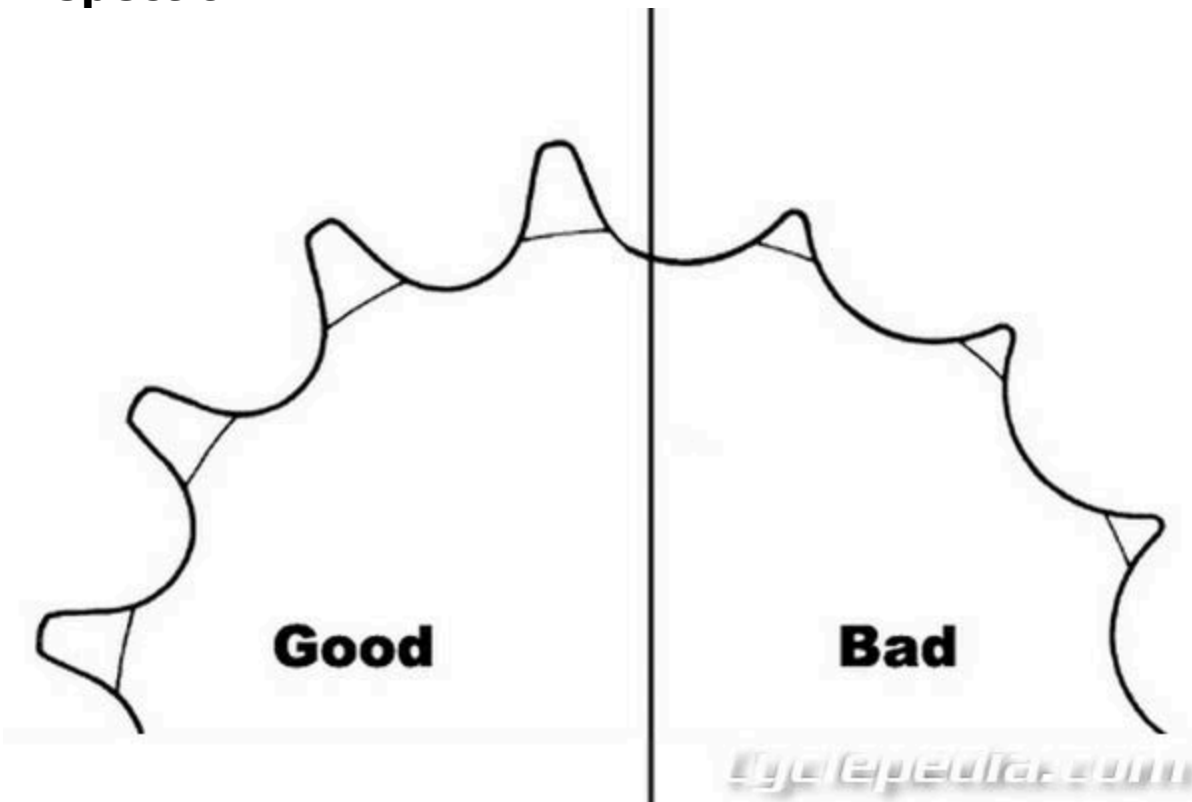
Hold the bolts with a 5 mm hex driver and loosen the nuts with the closed end of a 14 mm wrench. Remove the six sprocket bolts along with their nuts and washers.





Remove the sprocket from the rear wheel.

## Inspection

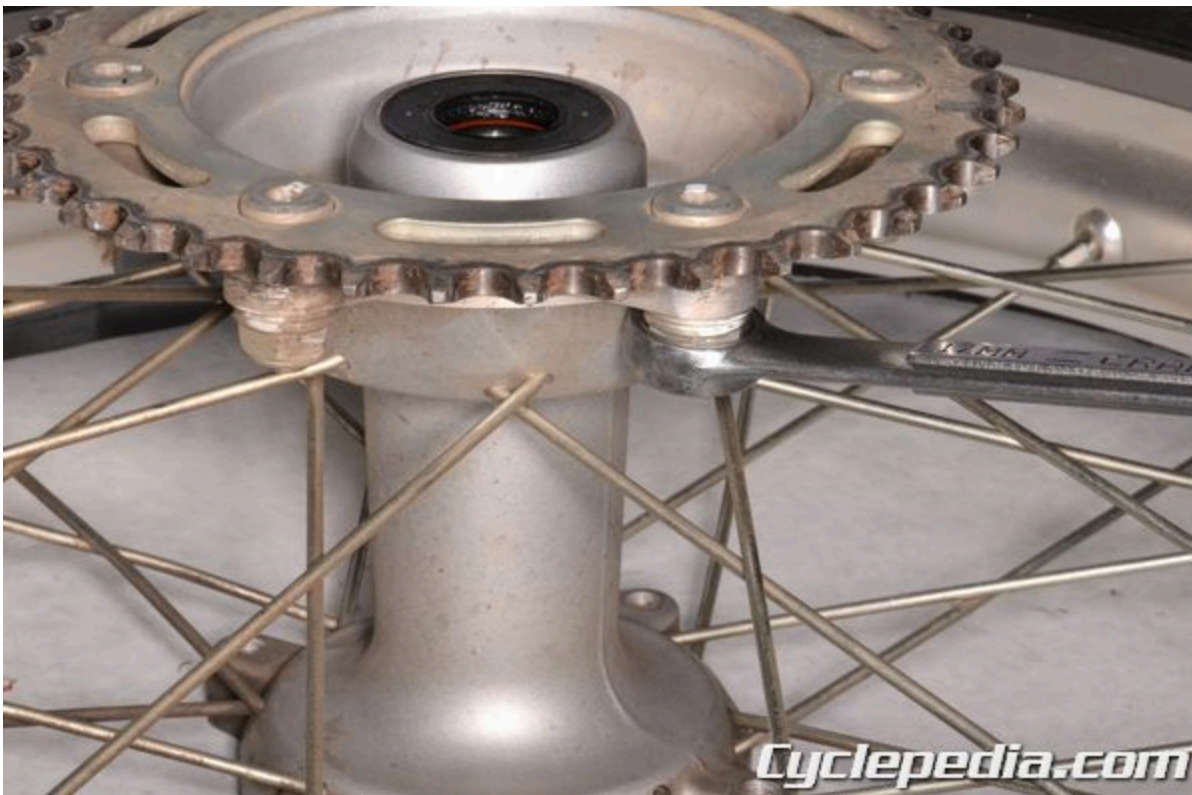


If the sprocket is worn by more than 1/4 of a tooth, replace the sprocket.

## Installation



Position the sprocket onto the rear wheel. Insert the six bolts, then thread the washers (with nuts) into place from underneath.



Hold the bolts and tighten the nuts to specification.

**Driven sprocket nut (self-lock nut):** 32 N-m (3.3 kgf-m, 24 ft-lb)

Install the rear wheel. See the [Rear Wheel](#) <sup>[1]</sup> topic for more information.  
URLs in this post:



[1] Rear Wheel: <https://www.cyclepedia.com/manuals/online/cpp-323/wheels/rear-wheel/>  
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## - Honda CRF300L Service Manual

### Steering Bearing Service

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

30 mm Socket  
Ratchet  
Torque Wrench  
Steering Stem Nut Wrench  
Drivers (Race and Bearing)  
Drift  
Hammer  
Cold Chisel  
Heat Gun  
Nitrile Gloves  
Safety Glasses

### **Removal**



Support and secure the motorcycle with a suitable stand or jack so that the front wheel is off of the ground.

Remove the following components:

Bodywork <sup>[1]</sup> (Front Fender for all models, Headlight Cowl/Visor for L/LA models, or left Fuel Tank Shroud for LR/LRA models)

Front Wheel <sup>[2]</sup>

Front Caliper <sup>[3]</sup> (remove and support aside, unbolt the brake line clamps for additional play)

Handlebar <sup>[4]</sup> (remove and support aside)

Meter Mount <sup>[5]</sup> (on L/LA models remove the mount for access. On LR/LRA models do this if better access is desired)

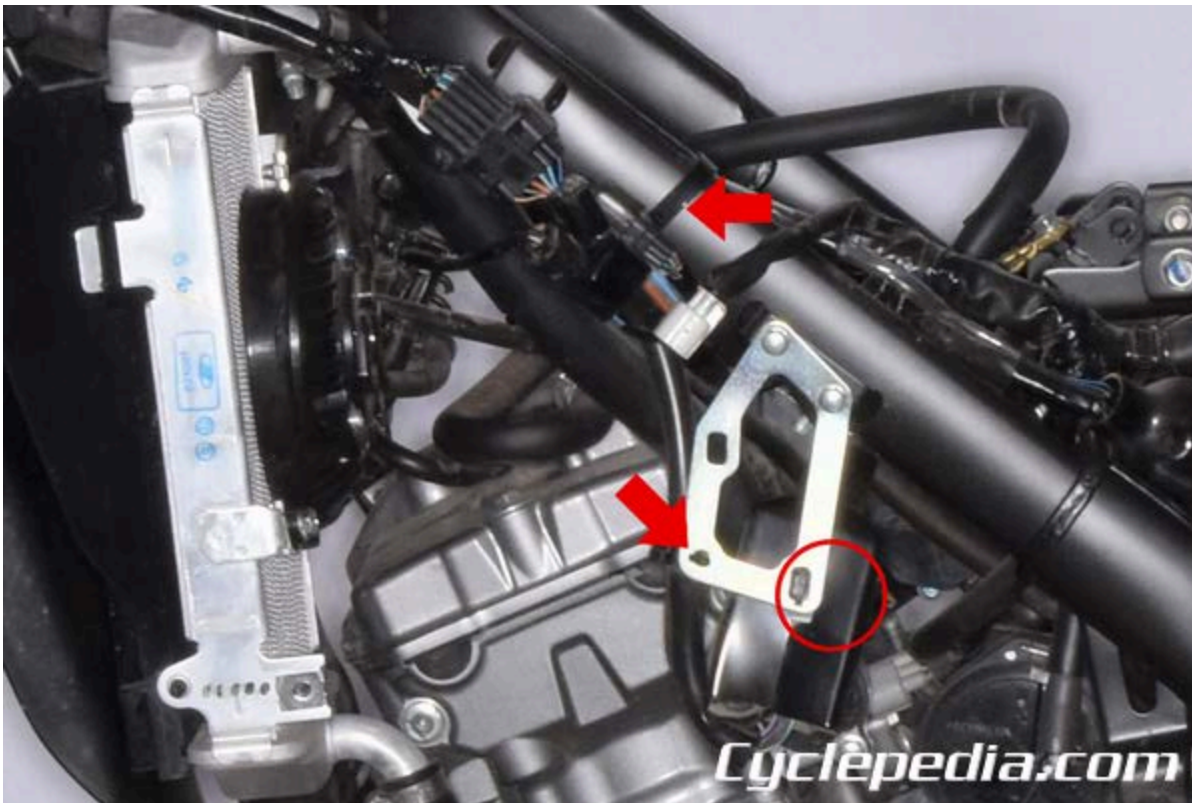




For LR/LRA models, as equipped, free the ignition switch wire clip and left handlebar switch wire clips from the the bracket (circle) on the left side. On the right side (arrows) remove the bolt and front wheel speed sensor wire clip, also free the throttle cables and tighten handle bar switch wire from the stay.



Next on LR/LRA models, remove the socket bolt and harness clamp from the frame.



Finally on LR/LRA models, release any wire bands or clips (arrows) then unplug the ignition switch connector. Free the harness as needed so the ignition switch can be removed with the steering stem.



Carefully remove the plastic steering stem cap.





Loosen the steering stem nut with a 30 mm socket. Once loosened, remove the forks (see the [Front Forks](#) <sup>[6]</sup> topic for more information).



Remove the steering stem nut and washer.



Remove the top fork clamp.



Using a pinned spanner wrench or a stem socket, loosen the steering adjusting nut.

**Special tool – Stem Socket Wrench:** 07916-3710101





Support the lower fork clamp and remove the adjusting nut.



Remove the lower fork clamp.

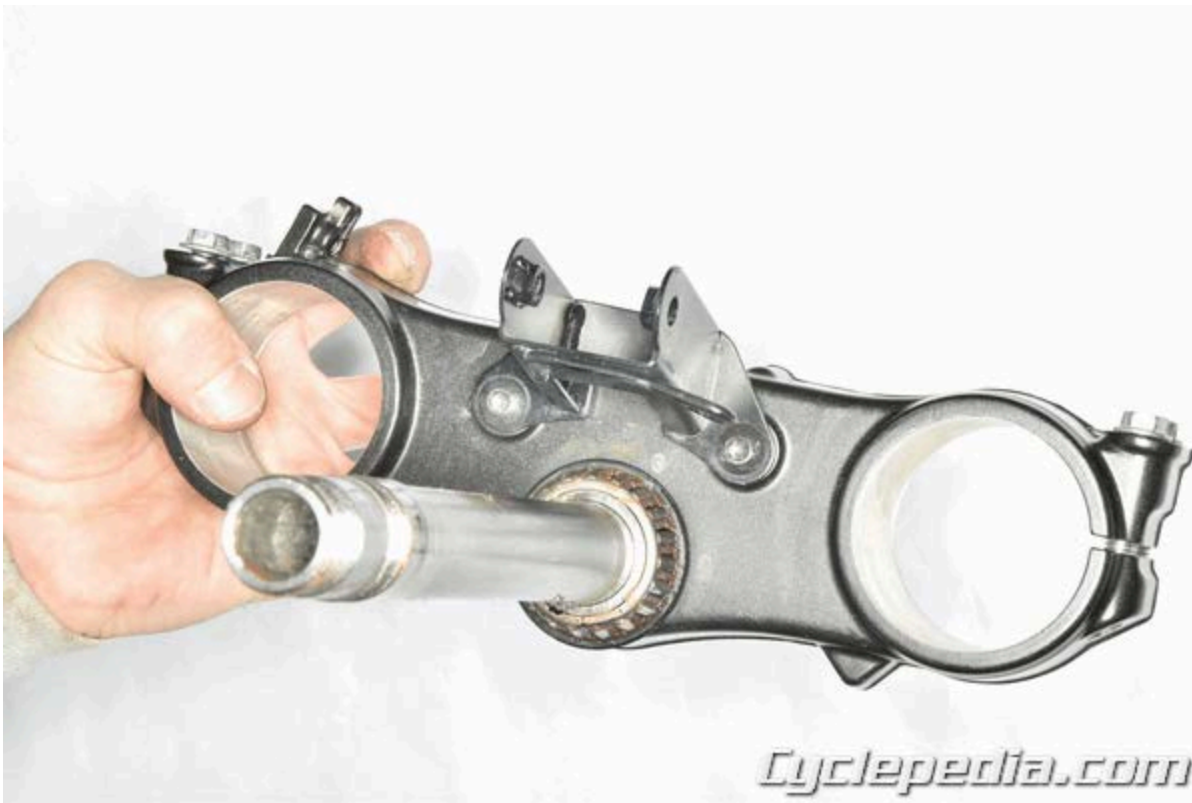


Remove the dust seal.



Remove the upper steering bearing.





Inspect the bearings for signs of wear or damage. Replace the bearings and races as a set if any is found.

## Bearing Replacement



Drive out the upper and lower bearing races a suitable race remover and driver, or if not available, very carefully using a drift.



Take care not to damage the steering head when working.

If using the special tools the remover is inserted from the near side (the side toward which the race is being driven out and it is then expanded to fit the race). The remover shaft is inserted from the far end to contact the remover, then the remover shaft is tapped with a hammer.

**Special tools –**

**Ball Race Remover:** 07948-4630100

**Race Remover 36 x L340:** 07GMD-KS40100





Remove the lower steering bearing. If a shop press and bearing separator is available install the stem nut over the top of the stem (until just about flush with the top of the threads) to protect the threads.



Alternately, drive the lower inner bearing off the steering stem using a chisel or similar tool. Be careful not to damage the threads or steering stem. Remove the lower dust seal after the race is removed.



Install a new dust seal and lower bearing, press on using a 28 mm driver until fully seated.

**Special Tool – Driver, 28 mm:** 07946-4300101



Drive in new upper and lower outer races using a suitable driver. Drive the races in evenly and until fully seated, be careful to only contact the outer edge and avoid damaging the race.

## Installation



Apply a high quality bearing grease to the new bearings.

Note: Be sure to apply **3 – 5 grams (0.11 to 0.18 oz)** of a Urea-based NLGI #2 grease with extreme pressure agent (such as Kyodo Yushi EXCELITE EP2, Shell Stamina EP2, or other equivalent) each new



bearing. The same grease should be applied to the races and dust seal lips.



Apply a light coat of grease to the races.



Install the upper bearing.



Install a new dust seal.



Install the steering stem back into the frame.





Apply a light coating of engine oil to the threads of the steering stem adjusting nut, then thread it into position by hand.



Tighten the steering stem using a stem socket.

**Special tool – Stem Socket Wrench:** 07916-3710101



Or a suitable spanner. Tighten the steering stem nut to **29.5 N-m (22 ft-lb)** to seat the bearing. Turn the steering stem left to right as far as it will go to five or six times to make sure the bearings are fully seated then loosen it fully but don't remove the nut.

Retighten the adjusting nut, this time to the final specification of **4.9 N-m (3.6 ft-lb)**.

#### **Steering stem adjusting nut**

**Initial:** 29.5 N-m (3.0 kgf-m, 22 ft-lb)

**Loosen/then final:** 4.9 N-m (0.5 kgf-m, 3.6 ft-lb)





Position the top fork clamp.



Install the steering stem washer and nut.



Temporarily install the [Front Forks](#) <sup>[6]</sup> but only tightening the lower pinch bolts so the steering stem can move over the top of the forks tubs as it is seated, then tighten the steering stem nut to specification using a 30 mm socket.

**Steering stem nut:** 103 N-m (10.5 kgf-m, 76 ft-lb)

Turn the steering left and right, be sure the steering is smooth and there is no looseness or binding. Finish fork installation once the steering stem nut is properly tightened.



Install the cap.



On LR/LRA models, route the ignition switch wiring through any guides and plug it back into the harness. Install the harness clamp and socket bolt (bottom photo) and tighten securely.

Install the following components:



Meter Mount <sup>[5]</sup> (if removed for access)

Handlebar <sup>[4]</sup>

Front Caliper <sup>[3]</sup>

Front Wheel <sup>[2]</sup>

Bodywork <sup>[1]</sup> (Front Fender for all models, Headlight Cowl for L/LA models, or left Fuel Tank Shroud for LR/LRA models)

Lower the bike and recheck steering head operation.

URLs in this post:

[1] Bodywork: **<https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>**

[2] Front Wheel: **<https://www.cyclepedia.com/manuals/online/cpp-323/wheels/front-wheel/>**

[3] Front Caliper: **<https://www.cyclepedia.com/manuals/online/cpp-323/front-brake/front-brake-caliper/>**

[4] Handlebar: **<https://www.cyclepedia.com/manuals/online/cpp-323/external-components/handlebars/>**

[5] Meter Mount: **<https://www.cyclepedia.com/manuals/online/cpp-323/external-components/meter-mount/>**

[6] Front Forks: **<https://www.cyclepedia.com/manuals/online/cpp-323/front-suspension/front-fork/>**

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## - Honda CRF300L Service Manual

### Front Fork Removal and Installation

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

5 mm Hex Driver  
8 mm Socket  
10 mm Socket  
30 mm Socket  
Ratchet  
Torque Wrench  
Nitrile Gloves  
Safety Glasses

## **Removal**

Remove the following components:

Front Wheel <sup>[1]</sup>

Front Caliper <sup>[2]</sup>

ABS Components <sup>[3]</sup> (on LA/LRA models, free the wheel speed sensor, wire, and clamp from the fork)

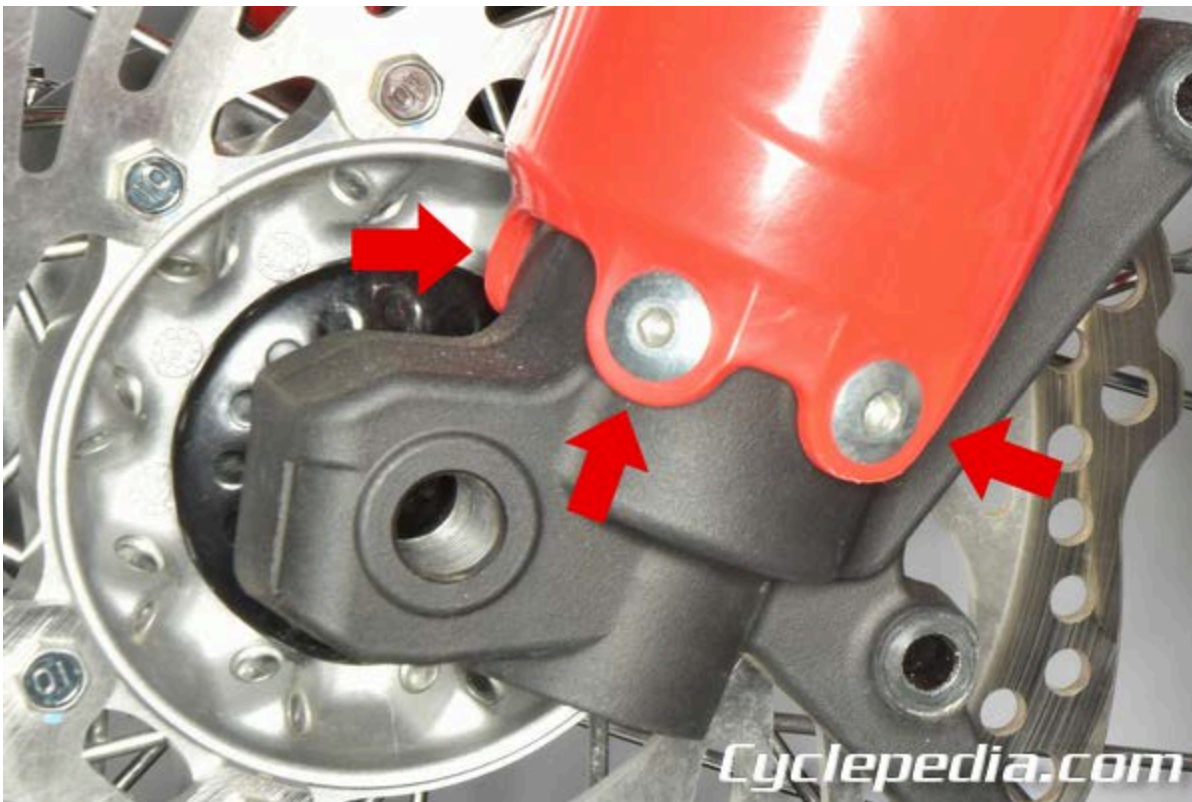


Loosen the two bolts using an 8 mm socket.





Remove the brake line clamp from the left fork.



If necessary remove the three socket bolts at the base of the fork that secure the fork protectors using a 5 mm hex driver. Remove the fork protectors and discard the old ALOC bolts (replace with new ones during installation).

Note: The fork protectors can remain installed unless the fork is being disassembled.



Loosen the two pinch bolts on each side of the upper fork clamp using a 10 mm socket.



If the fork is to be disassembled, use a 30 mm socket to break loose the fork cap while the lower fork clamp is still holding the fork in place.





While supporting the fork, loosen the lower fork clamp pinch bolts using a 10 mm socket.



Remove the fork by pulling it down and out of the fork clamps. Repeat for the other fork.

## **Inspection**



With the forks removed you can now check the wear rings for scoring or damage. The rings should be replaced if they are **1.5 mm (0.06 in)** or smaller. A quick visual indication of a need to replace them is if they are flat/even with the surface of the outer tube.

## Installation



Install the front forks up through the clamps. Note that the brake caliper mount is on the left side.





Position the forks so the outer tubes are even with the top of the upper fork clamp as shown. Temporarily tighten the lower fork clamps and then tighten the fork caps to specification using a 30 mm socket.

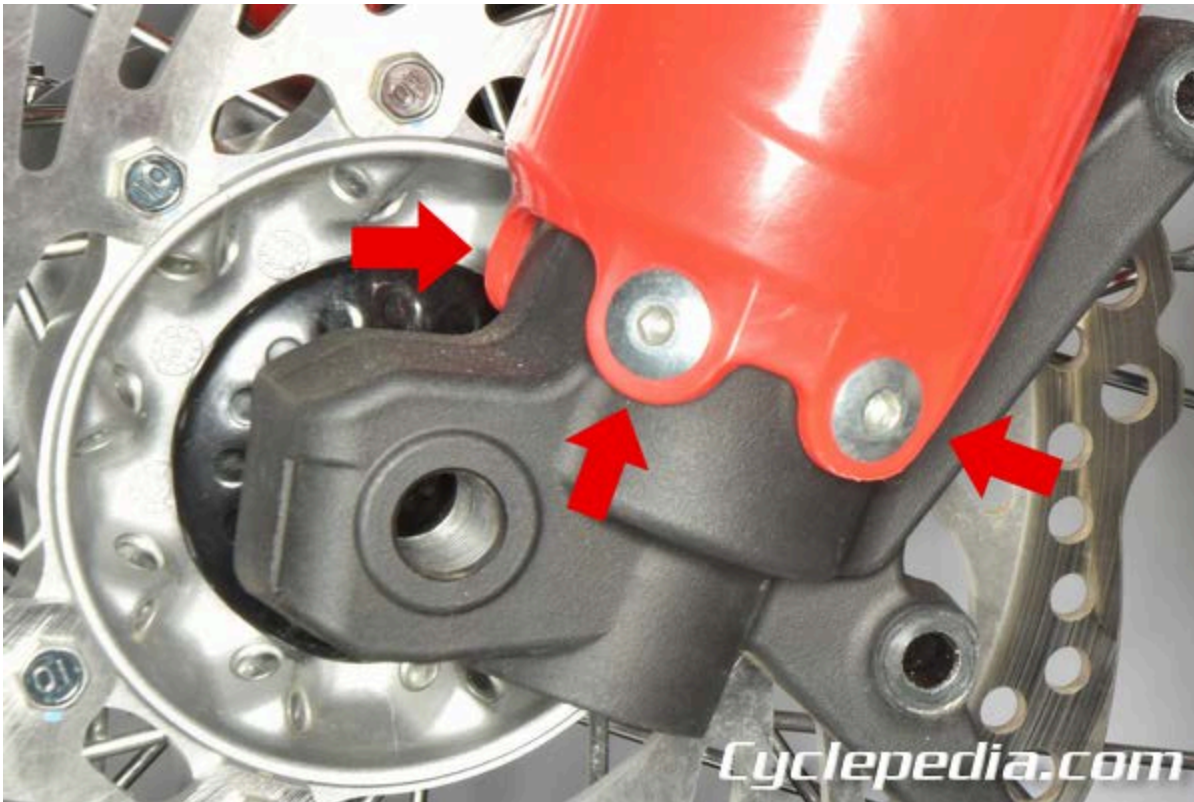
**Fork cap:** 35 N-m, (3.6 kgf-m, 26 ft-lb)



Tighten the top and bottom fork clamp (bridge) pinch bolts to specification using a 10 mm socket.

**Top bridge pinch bolt:** 29 N-m (3.0 kgf-m, 21 ft-lb)

**Bottom bridge pinch bolt:** 29 N-m (3.0 kgf-m, 21 ft-lb)



Install the fork protectors using new socket bolts and tighten to specification using a 5 mm hex driver.

**Fork protector bolt (ALOC bolt, replace):** 7.0 N-m (0.7 kgf-m, 5.2 ft-lb)



On the left fork, at the top of the protector, install the brake line clamp and tighten the two mounting bolts securely using an 8 mm socket.



Install the following:

ABS Components <sup>[3]</sup> (on LA/LRA models, install the wheel speed sensor, wire, and clamp)

Front Wheel <sup>[1]</sup>

Front Caliper <sup>[2]</sup>

URLs in this post:

[1] Front Wheel: **<https://www.cyclepedia.com/manuals/online/cpp-323/wheels/front-wheel/>**

[2] Front Caliper: **<https://www.cyclepedia.com/manuals/online/cpp-323/front-brake/front-brake-caliper/>**

[3] ABS Components: **<https://www.cyclepedia.com/manuals/online/cpp-323/front-brake/abs-components/>**

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## - Honda CRF300L Service Manual

### Left Fork Disassembly

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### Suggested Tools and Supplies

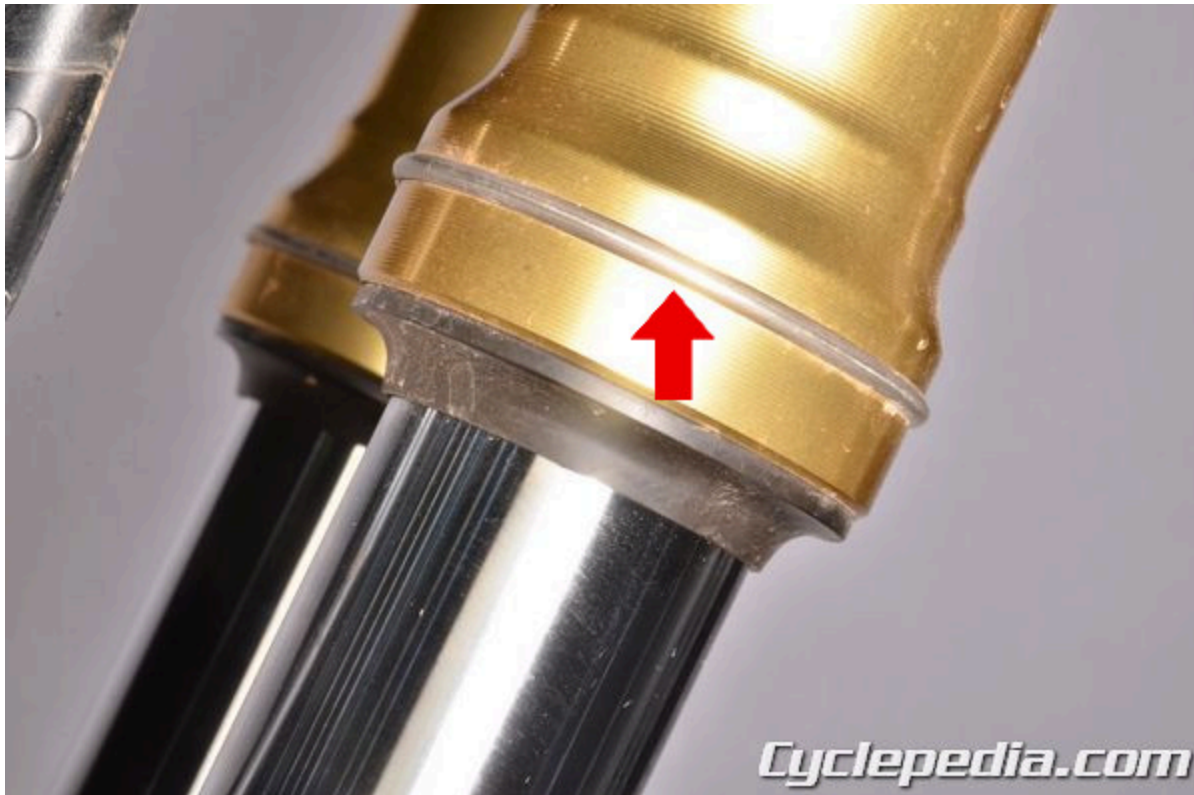
Bench Vise  
Wood Pieces / Soft Jaws  
6 mm Hex Driver  
30 mm Socket  
14 mm Wrench  
17 mm Wrench  
Ratchet  
Flat-Head Screwdriver  
Oil Catch Pan  
High Flash Point Solvent  
Nitrile Gloves  
Safety Glasses

The left and right forks on the CRF300 contain different internal components and therefore benefit from separate overhaul procedures.

Place the motorcycle on a stand so the front wheel is off of the ground.

Loosen the fork cap while the fork is still installed in the fork clamps, and then remove the front fork. See the [Front Fork Removal](#) <sup>[1]</sup> topic for more information.

Clean the outside of the fork before disassembly and inspect it for any cracks, dents or other damage.



If not done already, inspect the wear ring and replace it if it is damaged or flattened.





Clamp the fork leg assembly in a vise using soft jaws or wood to prevent damaging the fork surface. Loosen, but do not yet remove, the fork center bolt using a 6 mm hex driver inserted into the bottom of the fork.



Finish unthreading the fork cap which was loosened before removal using the 30 mm socket.



Turn the fork leg upside down to drain the fork oil into a suitable container. Pump the fork through its stroke at least a few times to release all of the oil.



Loosen the lock nut using a 14 mm open end wrench while holding the base of the fork cap with a 17 mm open end wrench.





Unthread and remove the fork cap from the rod.



Remove the O-ring from the groove near the top of the fork cap.



Remove the center bolt and sealing washer. Discard the old sealing washer and replace with a new one come assembly.



Remove the inner damper from the fork tube.





Remove the dust cover using a small flat blade screwdriver. Be careful not to scratch the fork tube. Discard the dust cover.

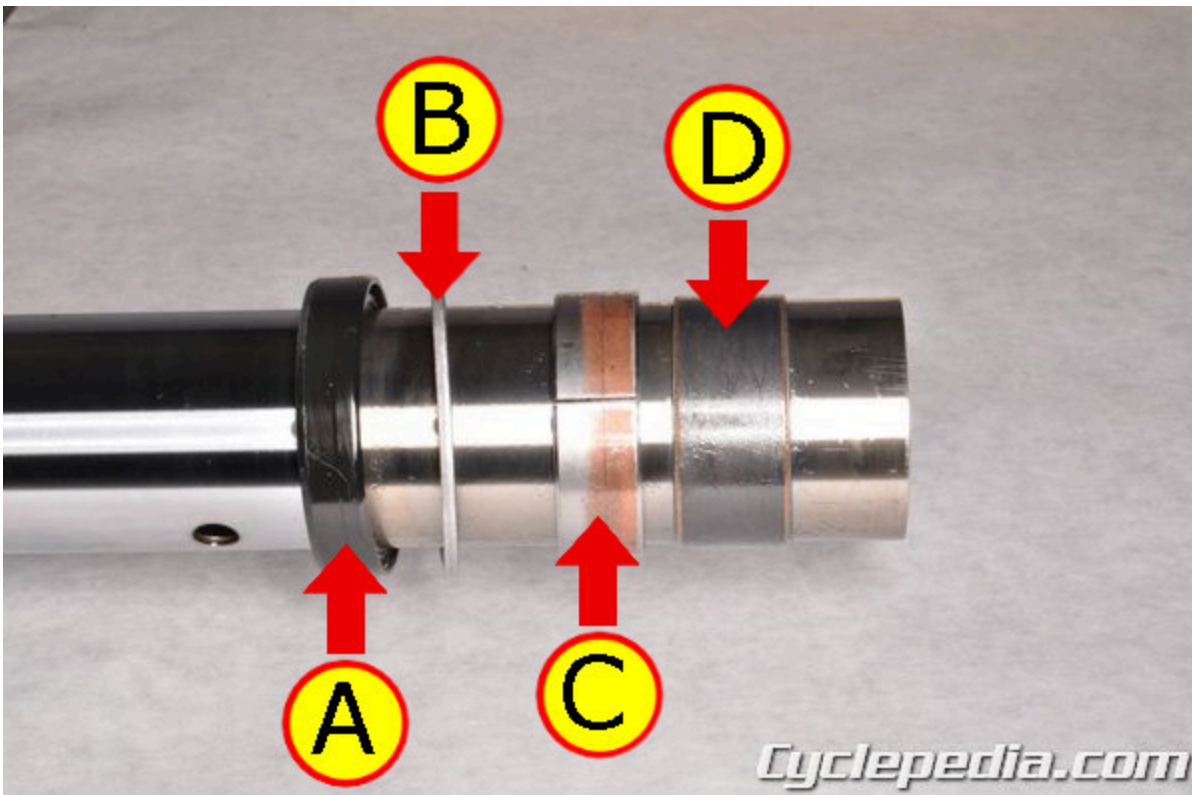


Remove the fork seal retaining clip using a flat blade screwdriver.

Note: Before proceeding check that the inner fork pipe moves smoothly in and out of the outer tube. If the movement is not smooth check the pipe for bends or damage when removed. If the pipe is good but there was binding suspect the outer tube.



Pull the inner fork tube out using a slide hammer motion.



This will cause the fork pipe slider bushing (D) to force out the guide bushing (C), back-up ring (B), and oil seal (A).





Remove the slider bushing by gently prying it apart with a flat blade screwdriver.



Carefully slide it off of the fork tube.

Note: If the bushing may be reused, spread it only enough to loosen it, but not so much as to lose tension.

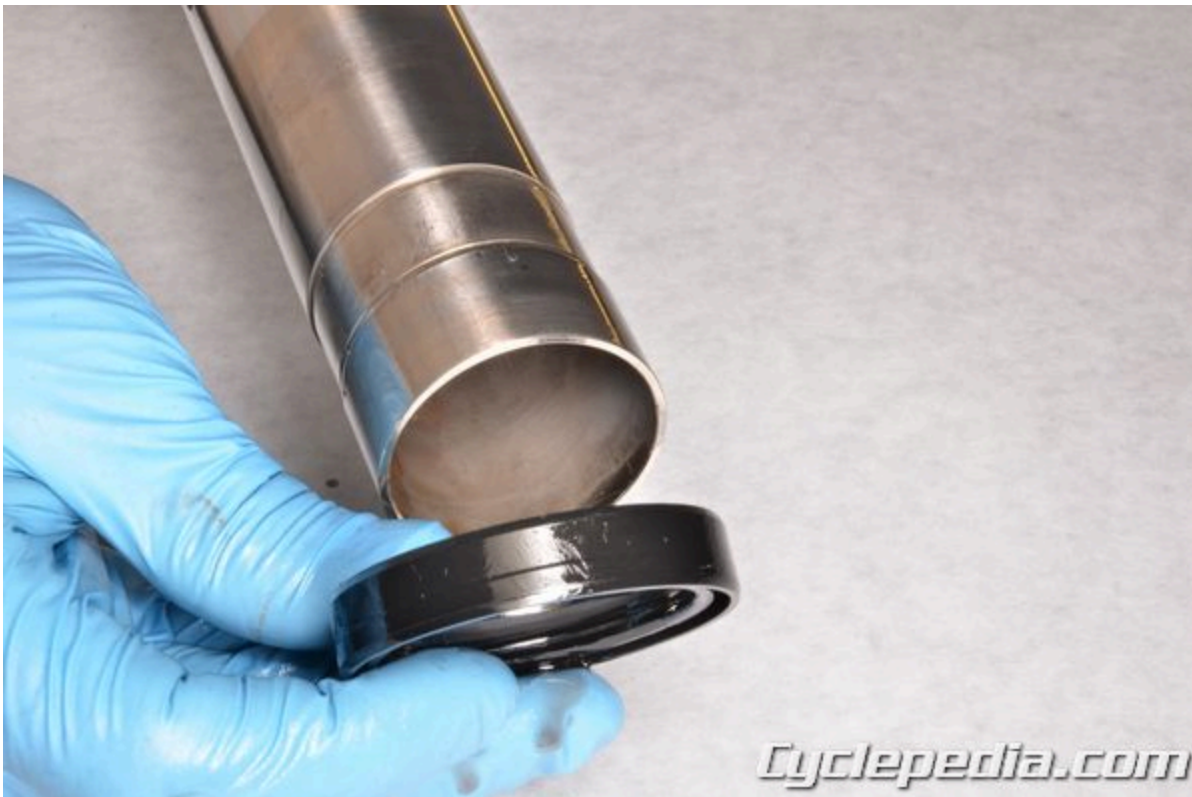


Remove the guide bushing.



Remove the back-up ring.





Remove and discard the fork oil seal.



Remove and discard the retaining clip.



Remove and discard the dust seal.

## Inspection

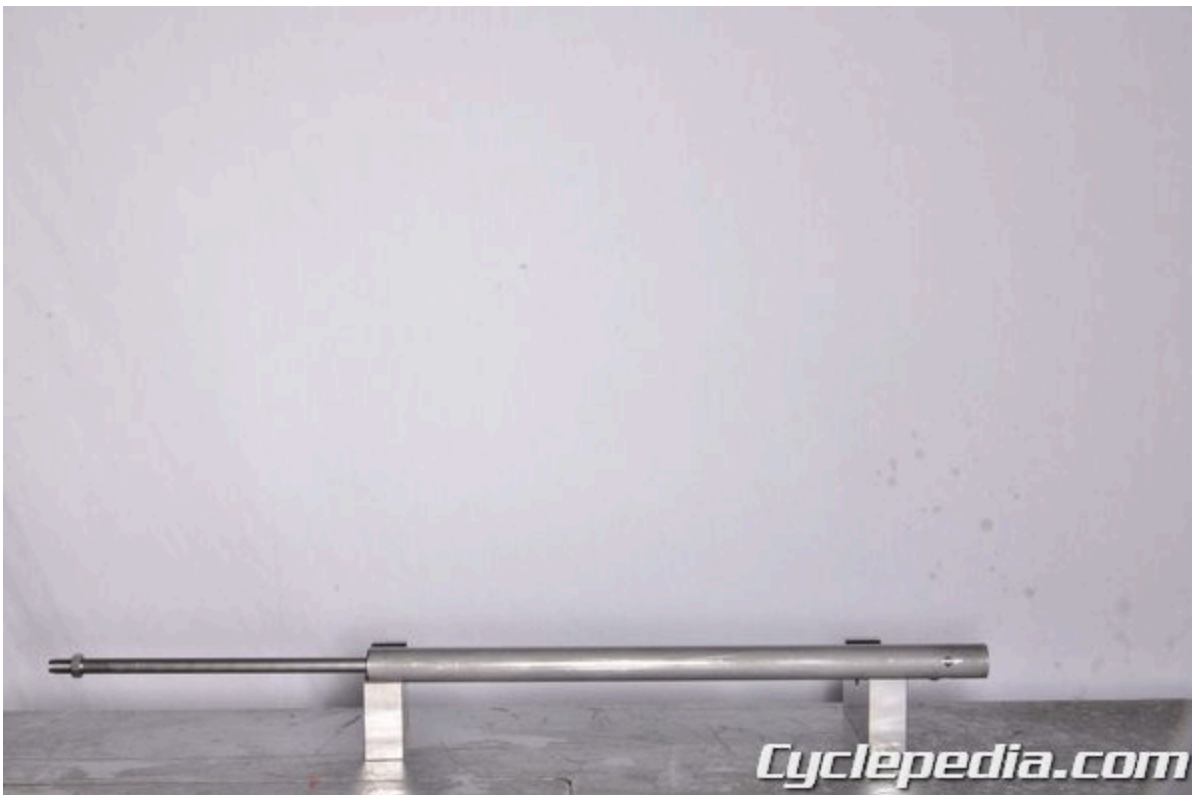


Inspect the bushings and back up ring for wear.





Inspect the inner pipe and outer fork tube for bends, dents, scratches or other damage. Replace as necessary.



Inspect the fork rod for bends or other damage.

Proceed with fork assembly. See the [Left Fork Assembly](#) <sup>[2]</sup> topic for more information. URLs in this post:

[1] Front Fork Removal: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/front-suspension/front-fork/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/front-suspension/front-fork/)

[2] Left Fork Assembly: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/front-suspension/left-fork-assembly/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/front-suspension/left-fork-assembly/)

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## - Honda CRF300L Service Manual

### Left Fork Assembly

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

Bench Vise  
Wood Pieces / Soft Jaws  
Fork Seal Driver  
6 mm Hex Driver  
30 mm Socket  
14 mm Wrench  
17 mm Wrench  
Ratchet  
Torque Wrench  
Flat-Head Screwdriver  
High Flash Point Solvent  
Nitrile Gloves  
Safety Glasses

Make sure all components are clean and free of any dirt or debris. Clean all of the fork components with aerosol brake cleaner and a lint free cloth.

It's always recommended to replace the O-rings, oil seal and dust seal regardless of condition. Apply a light coating of fork oil to the O-rings, seals, bushings, damper and any other sliding parts during assembly.

Place the corner of a clean plastic bag over the end of the fork tube to protect the lips of the dust seal and oil seal.

Note: Alternately the end of the pipe can be temporarily covered with thread tape for the same result.



Install a new dust seal making sure it is facing the proper direction to engage the outer tube when installed.



Install a new retaining clip. Move both the dust seal and the clip far enough down the tube to give room for oil seal installation once the inner and outer tubes are joined later.



Install a new oil seal making sure the marked side of the oil seal faces the dust seal. Remove the plastic bag or tape after the seal is safely on the pipe.





Install the back-up ring (if one side is flanged, face it back toward the guide bushing).



Install the guide bushing. Be especially careful when installing the bushings not to damage the coating.



Install the slider bushing. Remove any burrs from the bushing mating surfaces but be careful not to remove the Teflon coating.

**WARNING: Do not open the bushing more than necessary to safely slide it in position or tension could be lost.**



Coat the bushings and the lips of the fork seal liberally in fork oil. Slide the inner fork tube into the outer fork tube.





Use a fork seal driver to drive the oil seal into the outer fork leg. Drive the oil seal into position until the groove for the retaining clip is exposed.

**Special Tools-**

**Fork Seal Driver, 45.2 mm:** 07kMD-KZ30100

**Fork Seal Driver Attachment:** 07NMD-KZ30101



Install the stopper ring into the groove in the outer tube, taking care not to scratch the fork pipe.



Seat the dust seal to the outer pipe.



Install the inner damper to the fork pipe.





Make sure the center bolt is clean and dry, then place a new sealing washer over the bolt threads. Coat the threads of the center bolt with a threadlock compound and install it to the fork pipe.



With the fork pipe secured in a soft-jawed vice and/or protected by shop rags, tighten the center bolt to specification using a 6 mm hex driver.

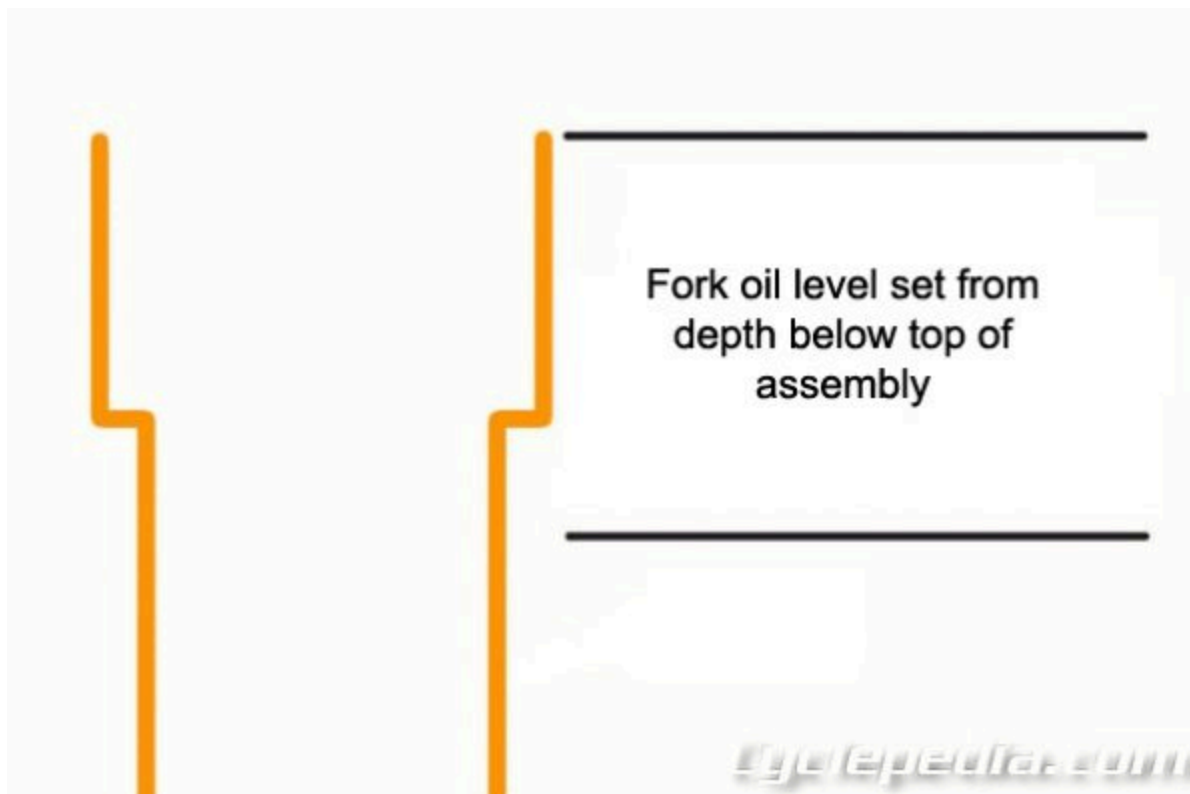
**Fork center bolt (apply threadlock):** 20 N-m (2.0 kgf-m, 15 ft-lb)



Hold the fork vertically and extend the fork inner damper and pour the recommended type and amount of fork oil into the fork inner pipe. Extend the fork, then place your hand firmly over the top of the pipe to seal it and pump the damper slowly to distribute the oil inside the damper and bleed the air. Repeat extending it and sealing it with your hand, then slowly pumping it two or three times.

**Recommended fork fluid** – Pro Honda Suspension Fluid (10W)

**Left Fork Fluid Capacity** –  $696 \pm 2.5 \text{ cm}^3$  ( $23.5 \pm 0.08 \text{ US oz}$ ,  $24.5 \pm 0.08 \text{ Imp oz}$ )





Compress the fork fully and allow the assembly to sit for at least 5 minutes to allow time for all bubbles to leave the fluid and the fluid level to settle. Then check the fluid height as the measured depth of the fluid below the top of the assembly while the fork is held upright.

**Left Fork Fluid Level – 54 mm (2.1 in)**



Either top off the fluid or draw off the excessive fluid, as necessary to achieve the proper level. If a fork oil gauge is available set it to the proper depth and use it to draw off any excess. If a fork oil gauge is not available, measure the fork oil level with a rod. If the oil level is too high, suck some fork oil out with a syringe.



Run the lock nut down to the base of the threads on the damper rod. Place a new O-ring on the fork cap and coat the O-ring in fork oil.



Thread the cap onto the damper rod until it bottoms on the threads.





Using a 17 mm open end wrench to hold the cap from turning and a 14 mm open end wrench on the lock nut, tighten the lock nut to specification against the cap.

**Fork rod nut:** 20 N-m (2.0 kgf-m, 15 ft-lb)



Completely extend the outer tube, then thread the cap into place. Tighten the fork cap to specification either now or once it is inserted into the fork clamp(s).

**Fork cap:** 35 N-m (3.6 kgf-m, 26 ft-lb)

Install the left front fork. See the Front Fork Installation <sup>[1]</sup> topic for more information.  
URLs in this post:

[1] Front Fork Installation: **<https://www.cyclepedia.com/manuals/online/cpp-323/front-suspension/front-fork/>**

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## - Honda CRF300L Service Manual

### Right Fork Disassembly

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### Suggested Tools and Supplies

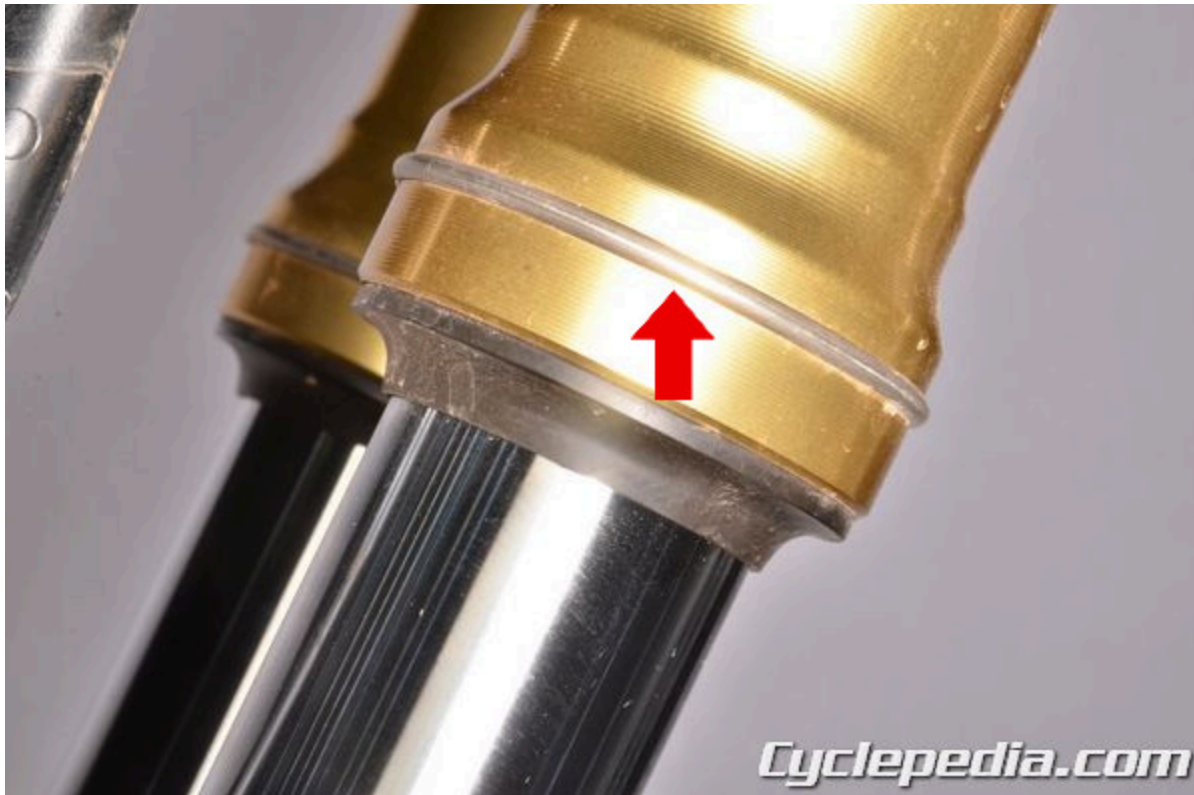
Bench Vise  
Wood Pieces / Soft Jaws  
30 mm Socket  
14 mm Wrench  
17 mm Wrench  
Ratchet  
Flat-Head Screwdriver  
Oil Catch Pan  
High Flash Point Solvent  
Tape Measure  
Nitrile Gloves  
Safety Glasses

The left and right forks on the CRF300 contain different internal components and therefore benefit from separate overhaul procedures.

Place the motorcycle on a stand so the front wheel is off of the ground.

Loosen the fork cap while the fork is still installed in the fork clamps, and then remove the front fork. See the [Front Fork Removal](#) <sup>[1]</sup> topic for more information.

Clean the outside of the fork before disassembly and inspect it for any cracks, dents or other damage.



If not done already, inspect the wear ring and replace it if it is damaged or flattened.



Finish unthreading the fork cap which was loosened before removal using the 30 mm socket.

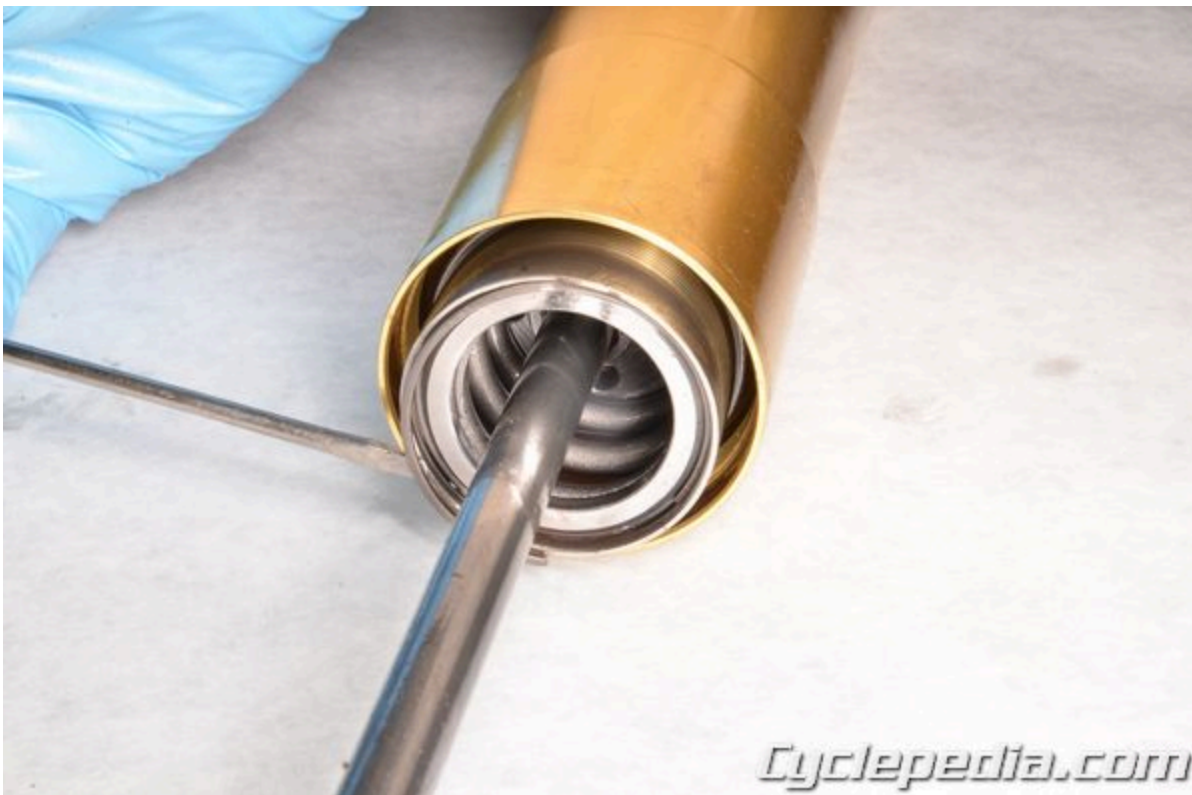


Turn the fork leg upside down to drain the fork oil into a suitable container. Pump the fork through its stroke at least a few times to release all of the oil.





Push downward on the fork cap so as to compress the spring.



Use a small flat blade screwdriver to carefully remove the stopper ring from the groove in the pipe.



With the stopper ring removed, withdraw the fork cap and rod assembly from the pipe.



Loosen the lock nut using a 14 mm open end wrench while holding the base of the fork cap with a 17 mm wrench. Unthread and remove the fork cap from the rod. Remove the O-ring from the groove near the top of the fork cap.





Remove the spring seat and the rebound spring from the rod.



Remove the spring from the fork.



Then remove the spring collar.



Remove the dust cover using a small flat blade screwdriver. Be careful not to scratch the fork tube. Discard the dust cover.



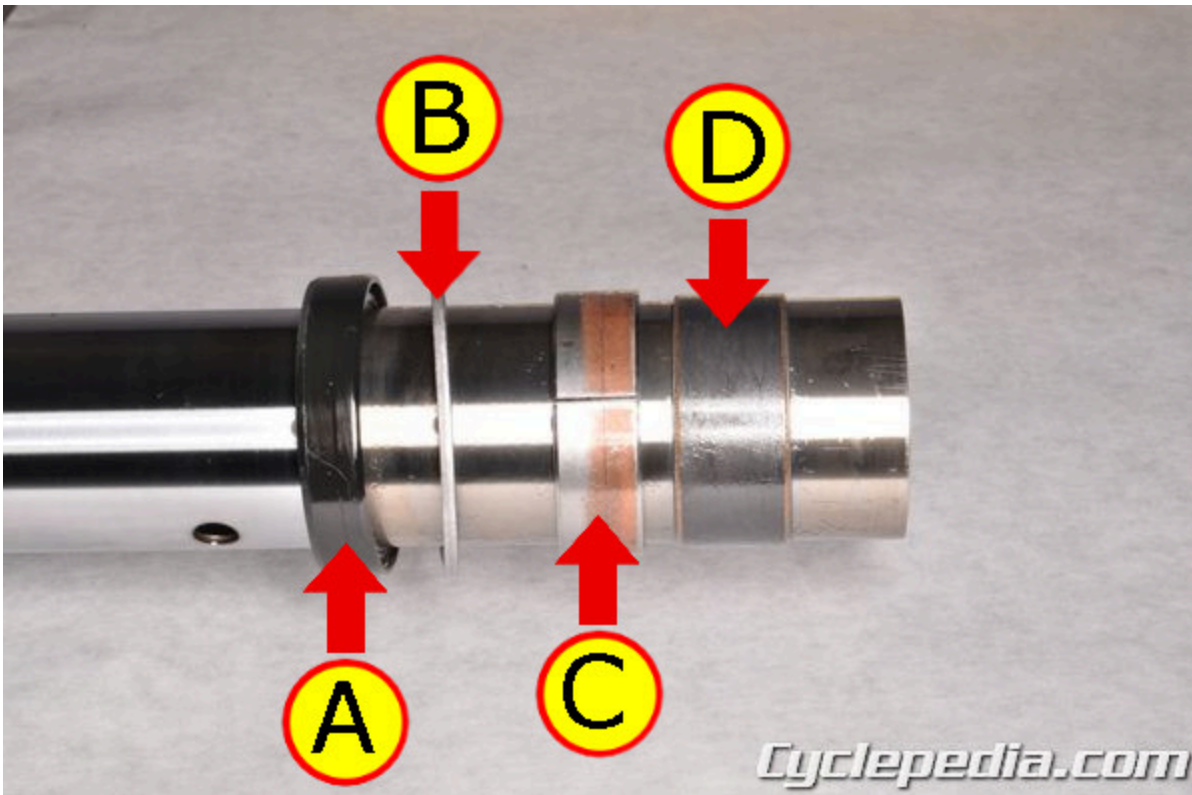


Remove the fork seal retaining clip using a flat blade screwdriver.

Note: Before proceeding check that the inner fork pipe moves smoothly in and out of the outer tube. If the movement is not smooth check the pipe for bends or damage when removed. If the pipe is good but there was binding suspect the outer tube.



Pull the inner fork tube out using a slide hammer motion.



This will cause the fork pipe slider bushing (D) to force out the guide bushing (C), back-up ring (B), and oil seal (A).



Remove the slider bushing by gently prying it apart with a flat blade screwdriver.





Slide the bushing off of the fork tube.

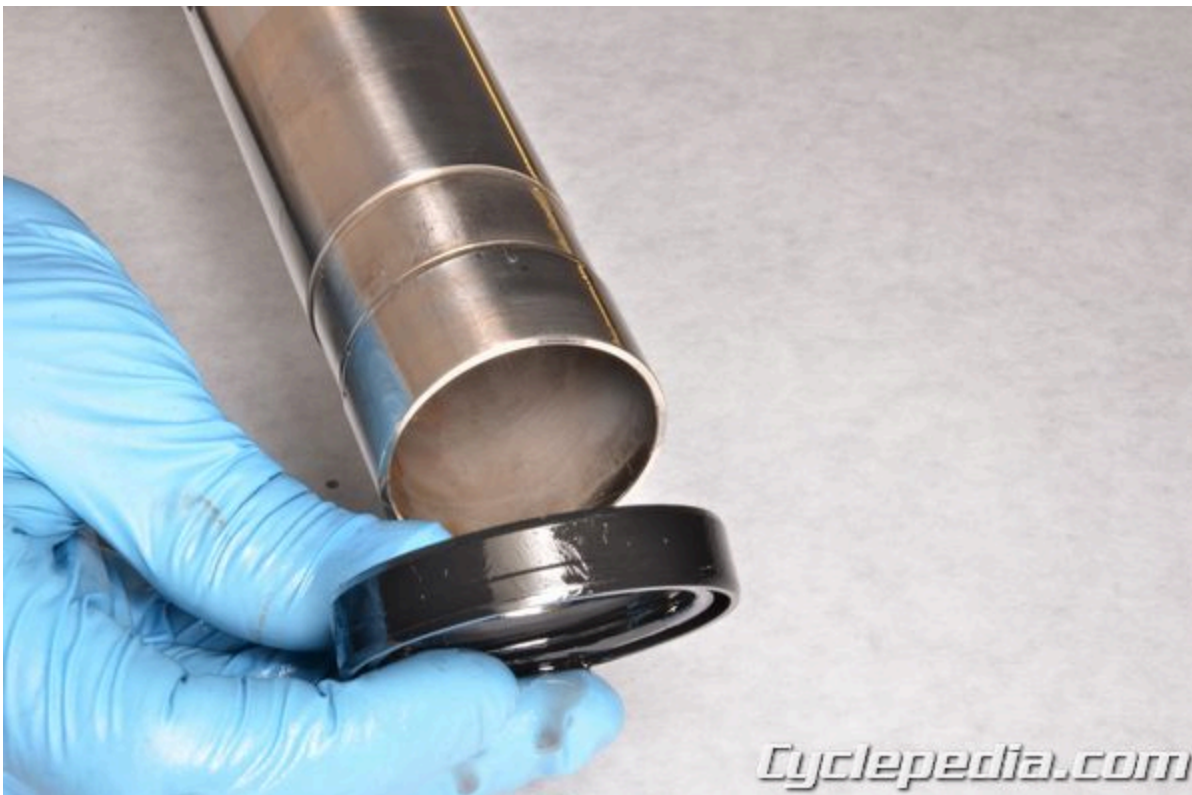
Note: If the bushing may be reused, spread it only enough to loosen it, but not so much as to lose tension.



Remove the guide bushing.



Remove the back-up ring.



Remove and discard the fork oil seal.





Remove and discard the retaining clip.



Remove and discard the dust seal.

## **Inspection**



Inspect the bushings and back up ring for wear.



Inspect the fork piston and rebound spring for wear.





Inspect the inner pipe and outer fork tube for bends, dents, scratches or other damage. Replace as necessary.



Measure the free length of the fork springs and compare your readings with specification.

**Fork Spring free length:**

**L/LA:** 544.9 mm (21.45 in) standard, 534.0 mm (21.02 in) limit

**LR/LRA:** 536.1 mm (21.11 in) standard, 525.4 mm (20.68 in) limit

Proceed with fork assembly. See the [Right Fork Assembly](#) <sup>[2]</sup> topic for more information. URLs in this post:

[1] Front Fork Removal: **<https://www.cyclepedia.com/manuals/online/cpp-323/front-suspension/front-fork/>**

[2] Right Fork Assembly: **<https://www.cyclepedia.com/manuals/online/cpp-323/front-suspension/fork-assembly/>**

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## - Honda CRF300L Service Manual

### Right Fork Assembly

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

Bench Vise  
Wood Pieces / Soft Jaws  
Fork Seal Driver  
30 mm Socket  
14 mm Wrench  
17 mm Wrench  
Ratchet  
Torque Wrench  
High Flash Point Solvent  
Nitrile Gloves  
Safety Glasses

Make sure all components are clean and free of any dirt or debris. Clean all of the fork components with aerosol brake cleaner and a lint free cloth.

It's always recommended to replace the O-rings, oil seal and dust seal regardless of condition. Apply a light coating of fork oil to the O-rings, seals, bushings, damper and any other sliding parts during assembly.

Place the corner of a clean plastic bag over the end of the fork tube to protect the lips of the dust seal and oil seal.

Note: Alternately the end of the pipe can be temporarily covered with thread tape for the same result.



Install a new dust seal making sure it is facing the proper direction to engage the outer tube when installed.



Install a new retaining clip. Move both the dust seal and the clip far enough down the tube to give room for oil seal installation once the inner and outer tubes are joined later.



Install a new oil seal making sure the marked side of the oil seal faces the dust seal. Remove the plastic bag or tape after the seal is safely on the pipe.





Install the back-up ring (if one side is flanged, face it back toward the guide bushing).



Install the guide bushing. Be especially careful when installing the bushings not to damage the coating.



Install the slider bushing. Remove any burrs from the bushing mating surfaces but be careful not to remove the Teflon coating.

**WARNING: Do not open the bushing more than necessary to safely slide it in position or tension could be lost.**



Coat the bushings and the lips of the fork seal liberally in fork oil. Slide the inner fork tube into the outer fork tube.





Use a fork seal driver to drive the oil seal into the outer fork leg. Drive the oil seal into position until the groove for the retaining clip is exposed.

**Special Tools-**

**Fork Seal Driver, 45.2 mm:** 07kMD-KZ30100

**Fork Seal Driver Attachment:** 07NMD-KZ30101



Install the stopper ring into the groove in the outer tube, taking care not to scratch the fork pipe.



Seat the dust seal to the outer pipe.



Pour the recommended type and amount of fork oil into the fork inner pipe. Pump the fork pipe slowly several times to distribute the oil inside the assembly.

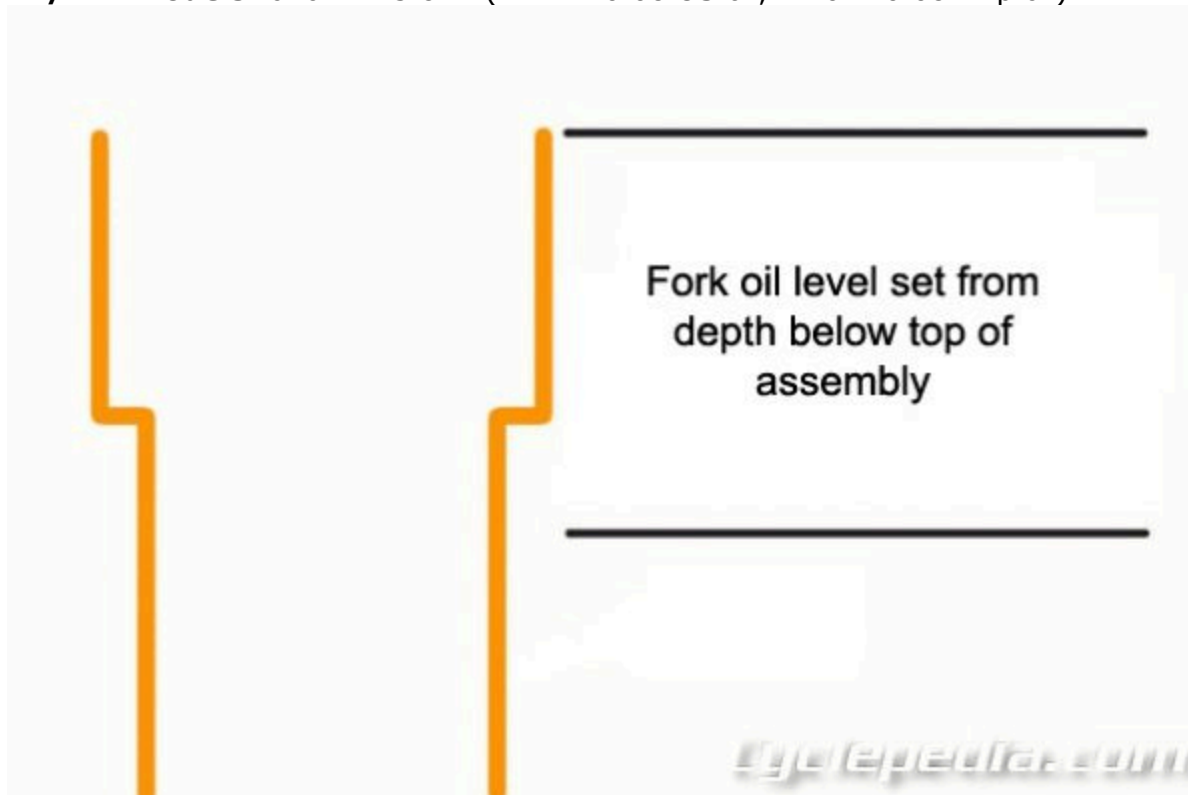
**Recommended fork fluid** – Pro Honda Suspension Fluid (10W)

**Right Fork Fluid Capacity** –



**L/LA Models:**  $638 \pm 2.5 \text{ cm}^3$  ( $21.6 \pm 0.08 \text{ US oz}$ ,  $22.5 \pm 0.08 \text{ Imp oz}$ )

**LR/LRA Models:**  $626 \pm 2.5 \text{ cm}^3$  ( $21.2 \pm 0.08 \text{ US oz}$ ,  $22.0 \pm 0.08 \text{ Imp oz}$ )



Compress the fork fully and allow the assembly to sit for at least 5 minutes to allow time for all bubbles to leave the fluid and the fluid level to settle. Then check the fluid height as the measured depth of the fluid below the top of the assembly while the fork is held upright.

#### **Right Fork Fluid Level –**

**L/LA Models:** 171 mm (6.7 in)

**LR/LRA Models:** 182 mm (7.2 in)



Either top off the fluid or draw off the excessive fluid, as necessary to achieve the proper level. If a fork oil gauge is available set it to the proper depth and use it to draw off any excess. If a fork oil gauge is not available, measure the fork oil level with a rod. If the oil level is too high, suck some fork oil out with a syringe.



Install the spring collar.





Insert the fork spring making sure the smaller/tighter spring windings are facing upward.



Run the lock nut down to the base of the threads on the rod.



Install the rebound spring and the spring seat to the rod. Be sure to position the spring with the tighter wound coil facing up towards the seat and the spring seat with the smaller beveled side facing upward toward the lock nut.



Place a new O-ring on the fork cap and coat the O-ring in fork oil. Thread the cap onto the damper rod until it bottoms on the threads. Using a 17 mm open end wrench to hold the cap from turning and a 14 mm wrench on the lock nut, tighten the lock nut to specification against the cap.

**Fork rod nut:** 20 N-m (2.0 kgf-m, 15 ft-lb)





Install the stopper ring above the spring seat. Insert the cap and rod assembly into the fork.



Push downward on the fork cap.



With the spring compressed carefully seat the stopper ring into the groove in the pipe.



Completely extend the outer tube, then thread the cap into place. Tighten the fork cap to specification either now or once it is inserted into the fork clamp(s).

**Fork cap:** 35 N-m (3.6 kgf-m, 26 ft-lb)

Install the right front fork. See the [Front Fork Installation](#) <sup>[1]</sup> topic for more information. URLs in this post:



[1] Front Fork Installation: <https://www.cyclepedia.com/manuals/online/cpp-323/front-suspension/front-fork/>

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## Shock Absorber

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

### Suggested Tools and Supplies

14 mm Socket  
17 mm Socket  
Ratchets (two)  
Torque Wrench  
Drill and Bit (shock disposal)  
Plastic Bag (shock disposal)  
Nitrile Gloves  
Safety Glasses

## Removal

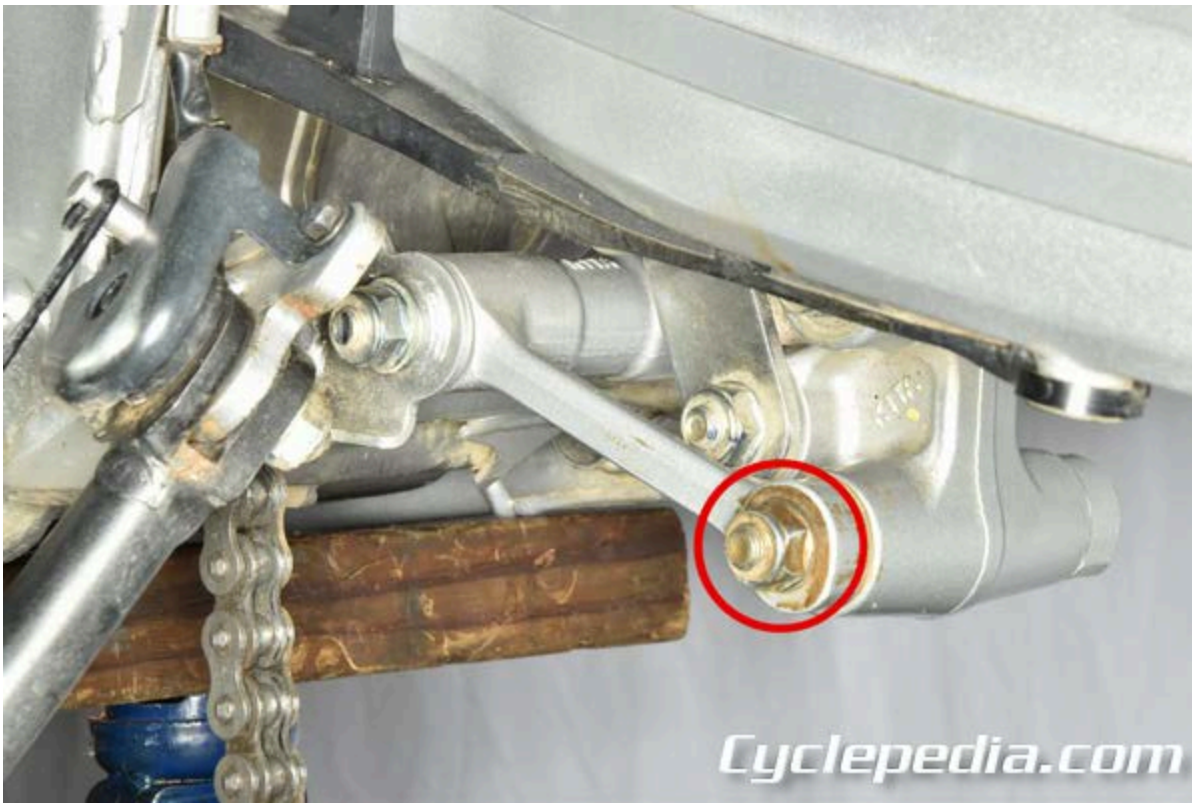
Secure the motorcycle with the rear wheel off the ground. Place an adjustable support under the rear suspension so it can be raised/lowered as needed.

Remove the side covers and fuel tank shrouds for access. See the [Bodywork](#) <sup>[1]</sup> topic for more information.



Hold the shock link-to-arm bolt from turning using a 14 mm socket.





And remove the shock link-to-arm nut using a 17 mm socket.



Remove the bolt and pivot the shock link out of the way for access, then hold the lower shock bolt from turning using a 14 mm socket.



And remove the lower shock mounting nut using a 17 mm socket. Remove the lower shock mounting bolt



Hold the upper shock bolt from turning using a 14 mm socket.





And loosen the upper shock nut using a 17 mm socket.



Remove the nut and washer from the upper shock bolt.



Support the shock, then remove the upper mounting bolt and lower the shock out of the chassis.

## Inspection



Inspect the shock absorber assembly for abnormal wear, leakage and damage. The original shock must be replaced as an assembly.





Inspect the bushing for wear and damage.

If the shock absorber is to be replaced the old unit should be purged of nitrogen gas before disposal. To do so use a punch on the side of the top shock body. Place the shock in a plastic bag and secure the shock in a vise in such a way that the open end of the bag and the punch mark are accessible. Insert a hand drill with 3 mm into the open end of the bag and carefully drill a hole in the shock body. Hold the bag tight to the back of the drill while drilling so the bag inflates with air from the tool to help keep the bag from getting caught and ripped. Also make sure the punch mark and drill aren't pointing towards your face for safety. Drill the hole into the shock body and allow the nitrogen gas to escape. The shock is now safe for disposal.

## **Installation**



Position the shock back into the chassis.



Insert the upper shock mounting bolt from the right side of the chassis.





Loosely the upper shock mounting bolt and washer.



Align the lower end of the shock absorber with the bore in the shock arm and insert the bolt, also from the right side of the chassis. Hold the bolt from turning using a 14 mm socket.



Then install the lower shock mounting nut and tighten to specification using a 17 mm socket.

**Shock absorber lower nut (self-lock nut):** 44 N-m (4.5 kgf-m, 32 ft-lb)



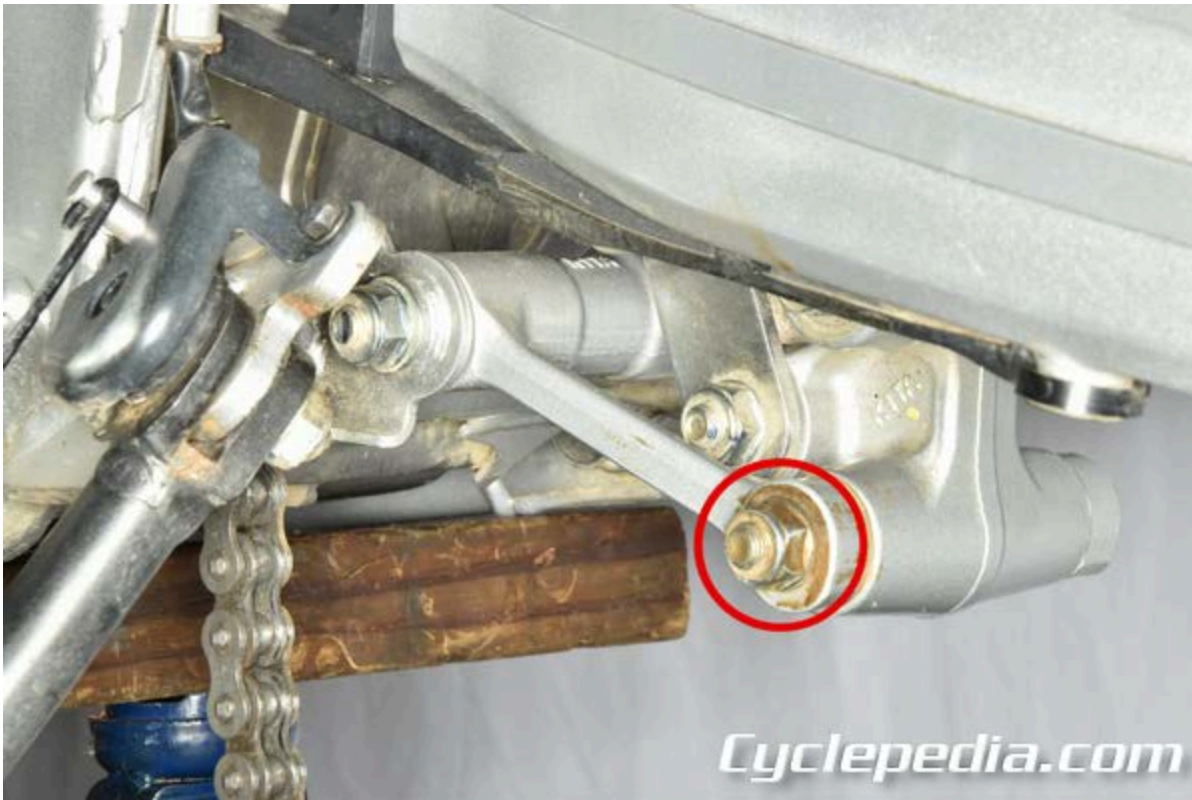
Then go back to the top, hold the upper shock bolt from turning and tighten the nut to specification.

**Shock absorber upper nut (self-lock nut):** 44 N-m (4.5 kgf-m, 32 ft-lb)





Pivot the shock link into position and insert the link-to-arm mounting bolt from the right side. Hold the bolt from turning using a 14 mm socket.



Install the nut and tighten to specification using a 17 mm socket.

**Shock link bolt, shock arm side (self-lock nut):** 44 N-m (4.5 kgf-m, 32 ft-lb)

Install the fuel tank shrouds and side covers. See the [Bodywork](#) <sup>[1]</sup> topic for more information.

Lower the motorcycle and check for proper shock action.  
URLs in this post:

[1] Bodywork: **<https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>**

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## - Honda CRF300L Service Manual

### Swing Arm

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### Suggested Tools and Supplies

8 mm Socket  
14 mm Socket  
17 mm Socket  
22 mm Socket  
Ratchets (two)  
Torque Wrench  
#2 Phillips Screwdriver  
Bearing Remover (bearing replacement)  
Driver Set (bearing replacement)  
Shop Press (bearing replacement)  
Nitrile Gloves  
Safety Glasses

### Removal

Use a jack or a work stand to raise the rear end up and get the wheel off the ground slightly. Make certain the chassis is secure and won't topple over when the rear wheel or swing arm is removed.

Note: If the swing arm is just being removed to service components on it and you don't wish to separate a chain link, then remove the engine sprocket to free the front of the chain and the chain can be removed complete with the swing arm.

Remove or perform the following for access:

Rear Wheel <sup>[1]</sup>

Drive Chain <sup>[2]</sup> or Engine Sprocket <sup>[3]</sup> (as desired)

Drive Chain Guards <sup>[4]</sup> (case)



The rear brake line is secured to the swing arm by a pair of brake hose guides.



Using a #2 Phillips screwdriver, remove the two screws that secure the brake hose guides.



Remove the guides to free the brake line.





Slip the rear caliper and bracket assembly off the guide rail on the swing arm and support aside. Take care not to stress, kink, or otherwise damage the brake hose.



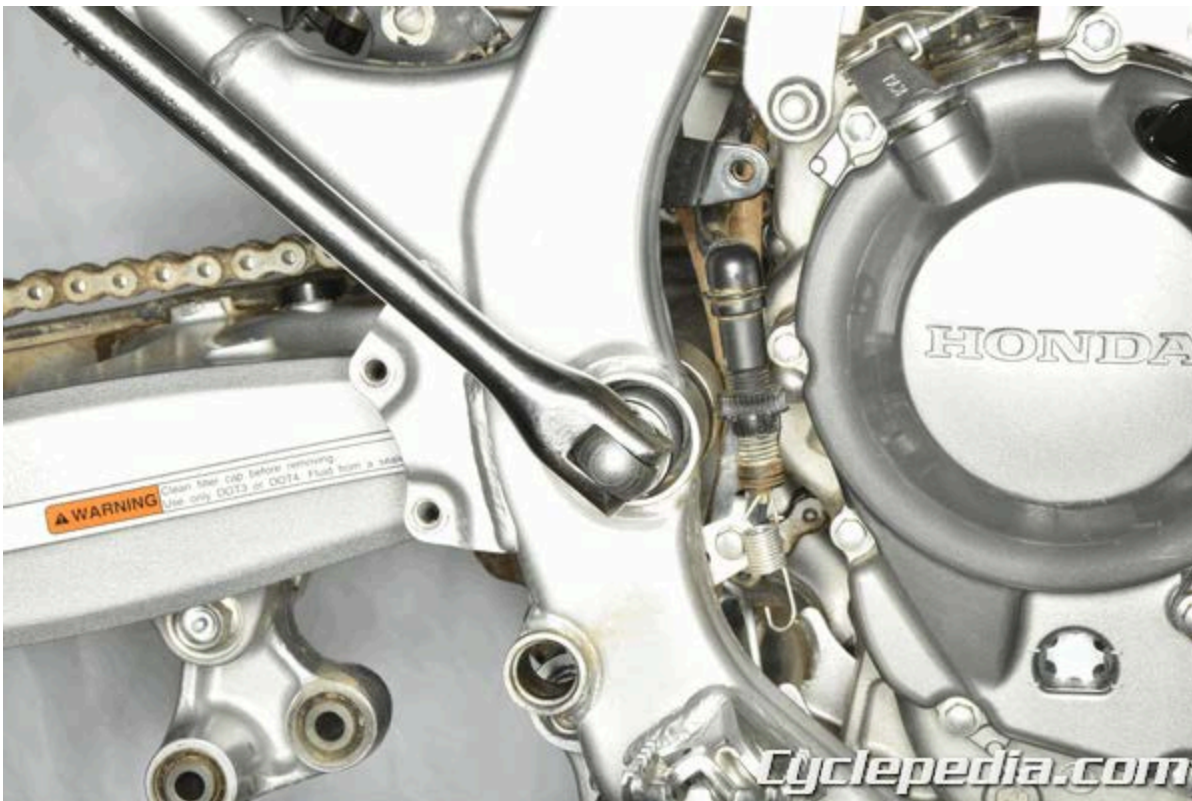
To remove only the swing arm use a 14 mm socket to hold the shock arm-to-swing arm bolt from turning, then remove the nut and washer using a 17 mm socket. Pull out the bolt to separate the linkage from the swing arm.

Note: The swing arm can be removed with the shock arm or other linkage attached as desired. You'll see in the accompanying photo since we'd already remove the shock and shock link from the shock arm,

we left the shock arm attached to the swing arm. The choice is yours.



The swing arm pivot bolt is the one suspension bolt inserted from the left side. Hold the bolt from turning using a 17 mm socket while loosening the nut on the other side.



Loosen the swing arm pivot nut using a 22 mm socket.





Remove the nut from the pivot bolt.



Support the swing arm and remove the pivot bolt.



Remove the swing arm from the chassis.



If the chain was removed with the swing arm, separate the two at this point.





If desired remove the drive chain guide for inspection or component replacement. See the [Drive Chain Adjustment](#) <sup>[5]</sup> topic for more information.



The chain is secured by five fasteners and a pair of tabs that include two screws on top of the slider and one bolt on the side.



Two more screws and a push tab are mounted from the bottom of the slider.



Remove the bolt and collar from the side of the swing arm and slider using an 8 mm socket.





Remove the four screws using a #2 Phillips screwdriver. Three of them use a large dished washer like shown.



The front screw at the top of the slider uses a smaller flat washer as shown.



Remove the fasteners and gently free the tab on the bottom of the swing arm, then remove the slider.

## Inspection



Inspect the chain guide for wear and replace, as needed.





Remove the dust caps from each side.



Remove the pivot collar. Check for grooves worn into the collars and replace if any are found.

Note: If the collar is replaced it is also a good idea to replace the dust caps. The caps should definitely be replaced if any corrosion or contamination is found on the collar or bearings.

Turn the bearings and check for excessive play, roughness or binding. Replace the bearing if any abnormalities are found.



Inspect the needle bearing for wear and damage.

## Bearing Replacement



Remove the bearings and internal dust seals that are mounted behind them with a 20 mm needle bearing puller (a bridge puller as shown or a slide hammer).





Apply grease to the inside of the new bearings and the new internal dust seals. First install the seals with the marked sides facing downward/inward and press them to a depth of **27.0 – 27.5 mm (1.06 – 1.08 in)** on the **left side** and **32.0 – 32.5 mm (1.26 – 1.28 in)** on the **right side** using a 20 mm driver.

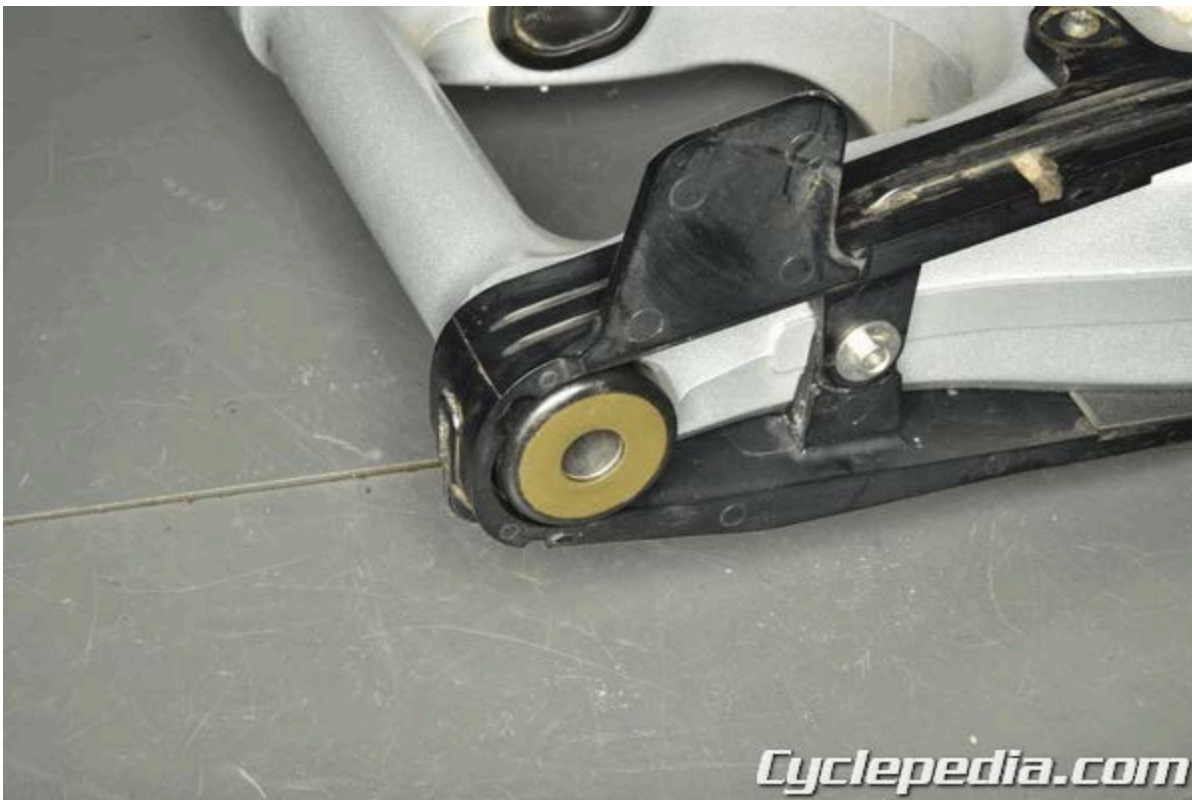


Next press the bearings into the swing arm with the marked sides facing up/out. Install the bearings to a depth of **7.0 – 7.5 mm (0.28 – 0.30 in)** of the left side or **11.0 – 11.5 mm (0.43 – 0.45 in)** on the **right side**.

## Assembly



Install the distance collar.



Apply a coating of grease to the dust seal caps, and pack the cavity between the caps and the collar/needle bearings with grease, then install the caps to both sides of the swing arm.

## Installation





If removed, position the chain slider over the swing arm.



Seat the cutout at the front of the slider over the tab on the front of the swing arm.



Align the tab on the underside of the slider with the hole in the swing arm and seat it.





Install the slider mounting screws with the appropriate washers. Install the three with the large dished washers (top photo) and the one with the smaller flat washer (bottom photo) and tighten to specification using a #2 Philips driver.

**Drive chain slider screw:** 4.2 N-m (0.4 kgf-m, 3.1 ft-lb)



Install the slider bolt and collar on the side of the swing arm, then tighten to specification using an 8 mm socket.

**Drive chain slider side bolt:** 4.2 N-m (0.4 kgf-m, 3.1 ft-lb)



If removed, install the chain guide and guide slider. See the [Drive Chain Adjustment](#) <sup>[5]</sup> topic for more information.





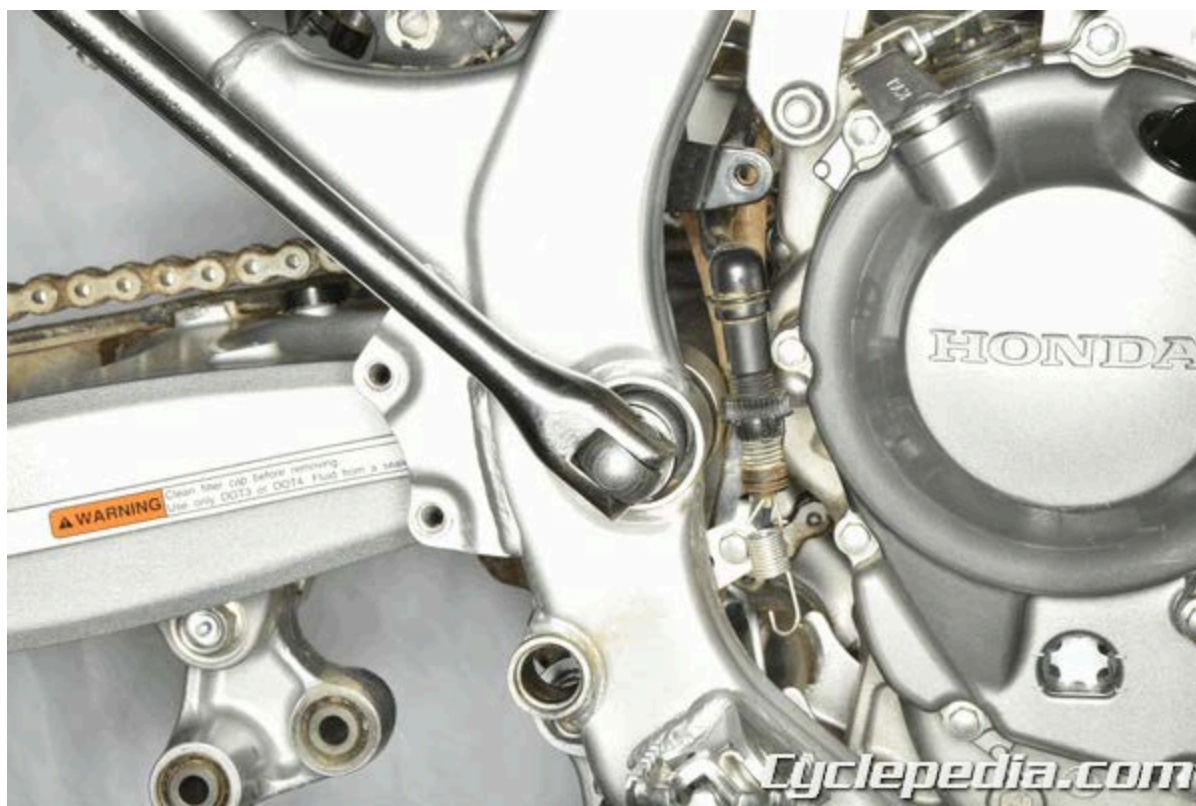
Place the chain over the swing arm and install the swing arm into the frame.



Apply a light coat of grease to the pivot bolt and slide it into the frame and swing arm.



Install the pivot nut.



Hold the pivot bolt using a 17 mm socket and tighten the nut to specification using a 22 mm socket.

**Swing arm pivot nut (self-lock nut):** 88 N-m (9.0 kgf-m, 65 ft-lb)





Align the shock arm and swing arm, then insert the bolt to hold them in position. Install the washer and nut on the bolt. Hold the bolt with a 14 mm socket and tighten the nut to specification with a 17 mm socket.

**Shock arm-to-swing arm nut (self-lock nut, oil threads):** 74 N-m (7.5 kgf-m, 55 ft-lb)



Position the brake caliper and mounting bracket to the swing arm by aligning the bracket top the guide rail.



Mount the brake hose assembly, aligning the tabs on the bottom of the hose guides with the holes in the swing arm.



Install the screws and tighten to specification using an Philips driver.

**Rear brake hose guide mounting screw:** 1.2 N-m (0.1 kgf-m, 0.9 ft-lb)

Install the following components:



Drive Chain Guards <sup>[4]</sup> (case)

Drive Chain <sup>[2]</sup> or Engine Sprocket <sup>[3]</sup> (as applicable)

Rear Wheel <sup>[1]</sup>

Remove the support and lower the bike, check action of the rear suspension.

URLs in this post:

[1] Rear Wheel: **<https://www.cyclepedia.com/manuals/online/cpp-323/wheels/rear-wheel/>**

[2] Drive Chain: **<https://www.cyclepedia.com/manuals/online/cpp-323/final-drive/drive-chain/>**

[3] Engine Sprocket: **<https://www.cyclepedia.com/manuals/online/cpp-323/final-drive/engine-sprocket/>**

[4] Drive Chain Guards: **<https://www.cyclepedia.com/manuals/online/cpp-323/external-components/chain-guards/>**

[5] Drive Chain Adjustment: **<https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/drive-chain-adjustment/>**

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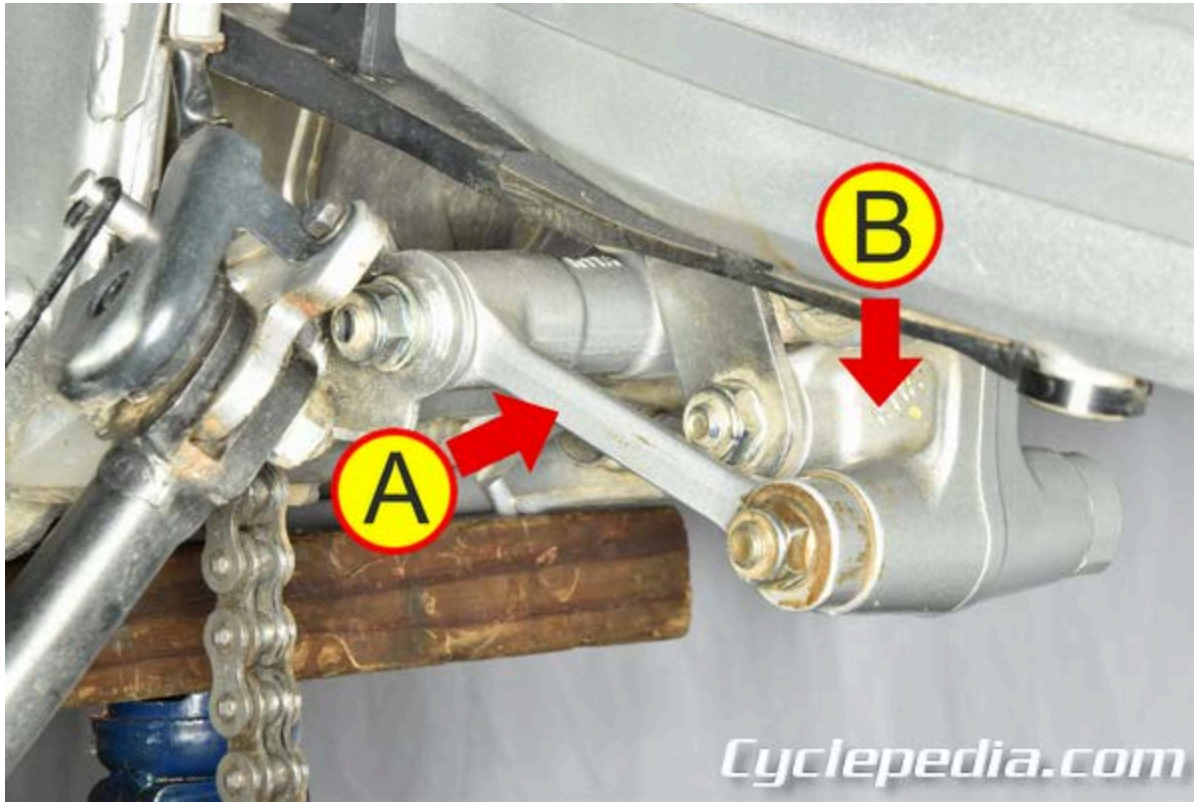
## - Honda CRF300L Service Manual

### Suspension Linkage

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### Suggested Tools and Supplies

- 14 mm Socket
- 17 mm Socket
- Ratchets (two)
- Torque Wrench
- Bearing Remover (bearing replacement)
- Driver Set (bearing replacement)
- Shop Press (bearing replacement)
- Nitrile Gloves
- Safety Glasses



The rear shock and swing arm utilize a two piece rear suspension linkage assembly which consists of a shock link (A) and a shock arm (B). Both components can be removed with or separately from the shock and swing arm as desired.

### Removal

Secure the motorcycle with the rear wheel off the ground. Place an adjustable support under the rear suspension so it can be raised/lowered as needed.





Hold the shock link-to-arm bolt from turning using a 14 mm socket.



And remove the shock link-to-arm nut using a 17 mm socket.



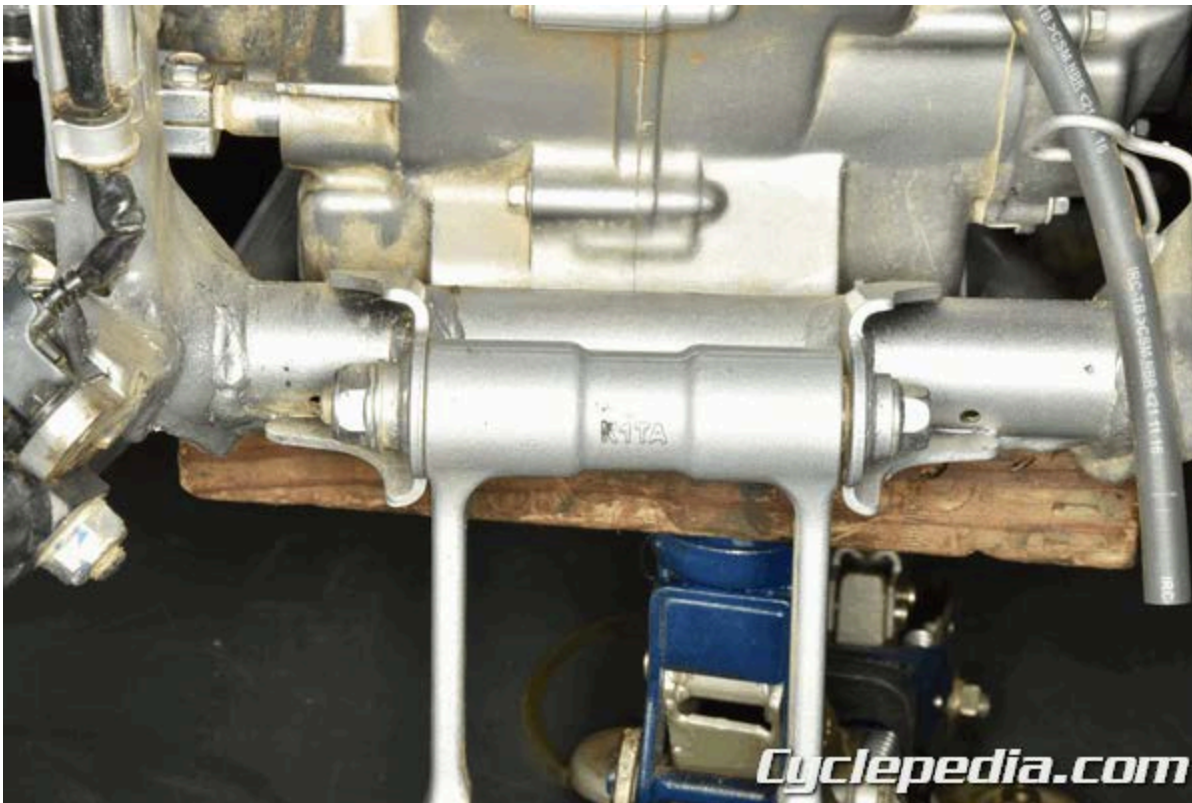
Remove the bolt and pivot the shock link out of the way for access, then hold the lower shock bolt from turning using a 14 mm socket.



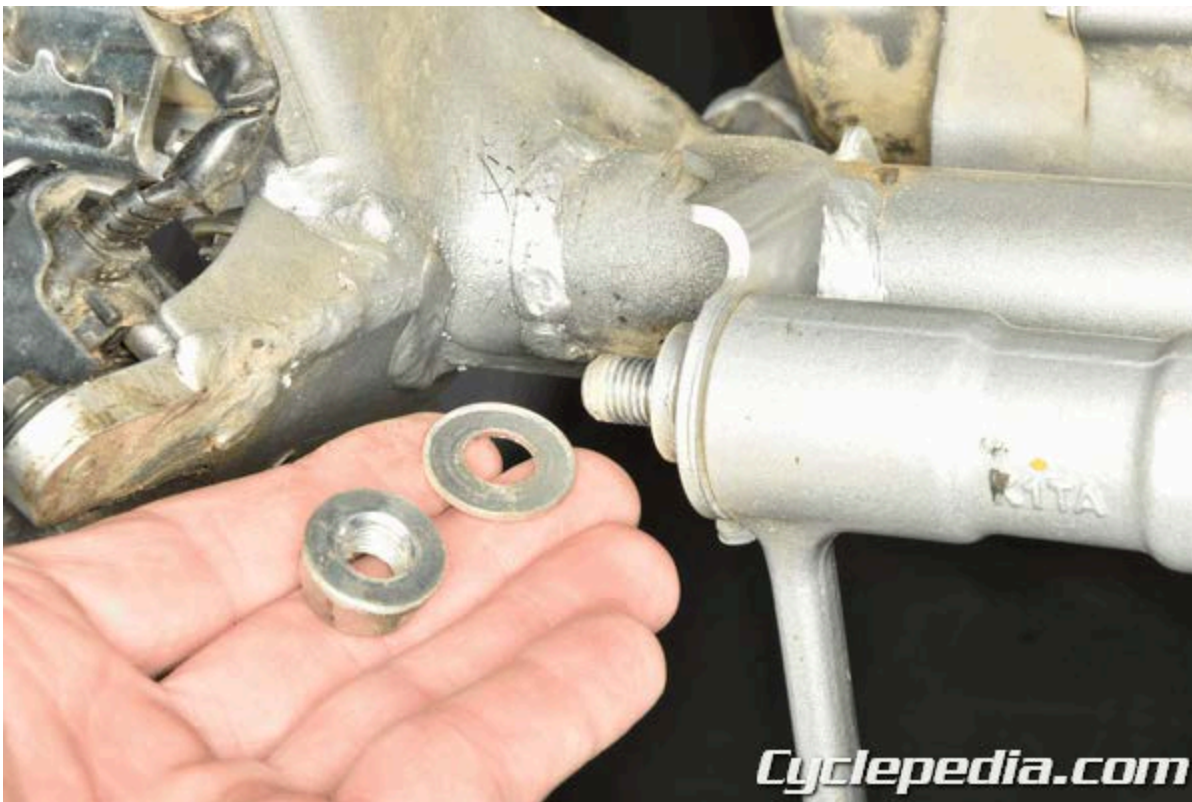
And remove the lower shock mounting nut using a 17 mm socket. Remove the lower shock mounting bolt

Note: At this point in our tear-down we removed the entire swing arm and then later separated the shock link from the frame and the shock arm from the swing arm. However the swing arm can remain installed as well. Simply note that the photos were taken with the swing arm removed for clarity.





Like the other linkage bolts, hold the shock link frame side bolt from turning using a 14 mm socket.



Then remove the nut and washer using a 17 mm socket.



Pull the bolt out and remove the shock link from the frame.

Note: It may be necessary to partially remove/relocate the brake pedal for clearance. See the [Rear Brake Pedal](#) <sup>[1]</sup> topic for more information.



Remove the bolt that secures the shock arm to the swing arm in the same manner.





Hold the bolt from turning using a 14 mm socket, then remove the nut and washer using a 17 mm socket.



Pull out the bolt and separate the shock arm from the swing arm.

## **Disassembly and Inspection**



Remove the collar from the shock link.



Remove the collars from the shock arm.

Note: Keep track of the shock arm collar locations as they are all different sizes, that correspond to the thickness of the arm as follows:

**Shortest length collar:** Link bolt/bearing

**Medium length collar:** Swing arm bolt/bearing



**Shortest length collar:** Shock bolt/bearings



Remove the dust seals from shock link and from the shock arm so the bearings can be inspected.



Inspect the collars, shock link and shock arm for abnormal wear or damage.





Inspect the needle bearings for wear and damage. Replace the bearings and dust seals if any wear or corrosion is found. Replace the collars, needle bearings and dust seals as a set.

## Bearing Replacement

Apply a coating of waterproof bearing grease to all new bearings before installation.



The bearings can be removed from each side of the shock link using a needle bearing remover and a slide hammer.



Use a shop press and suitable driver to install the replacement needle bearings with the marked side facing up/out into each side of the shock link until they are **5.8 – 6.2 mm (0.23 – 0.24 in)** below the outer surface of the bearing bores.



All of the bearings on the shock arm are removed and installed using a press. There is a single bearing each in the two thinner bores of the arm (thinnest being for the shock mount and the medium sized for the swing arm mount), but there are a pair of bearings in the thickest portion of the arm (for the shock link) and each of those bearings should be pressed out individually.



Upon installation each replacement bearing must be installed to the proper replacement depth as specified.

### **Shock Link and Shock Absorber Side Bearing of the Shock Arm:**

The bearings on the shock link and shock absorber side of the shock arm should be installed to a depth of **5.8 – 6.2 mm (0.23 – 0.24 in)** below the surface of the bearing bores. Be sure to press the bearings into position with the marked sides facing up/out.

### **Swing Arm Side Bearing of the Shock Arm:**

The bearing on the swing arm side of the shock arm should be installed to a depth of **8.3 – 8.7 mm (0.33 – 0.34 in)** below the surface of the bearing bores. Be sure to press the bearing into position with the marked side facing up/out.

## **Assembly**



Apply grease to the new dust seal lips. For all except the swing arm side of the shock arm install the dust seals so they are fully seated on the bearings. However, for the two seals on either side of the swing arm side bearing in the shock arm, install the seals until they are just below the surface or about **0.3 – 0.7 mm (0.01 – 0.03 in)** into the bore.



Install the collars to their proper positions in the shock arm as noted during removal. Longest collar goes in the link side of the arm.





Medium length collar goes in the swing arm side of the shock arm and the shortest in the shock side.



Install the collar to the shock link.

## Installation

When installing the shock link and arm be sure to position both components and loosely install all of the bolts and nuts before tightening them all in the proper order.



Install the shock arm to the swing arm and insert the retaining bolt from the right side.





Install the nut and washer on the shock arm-to-swing arm bolt.

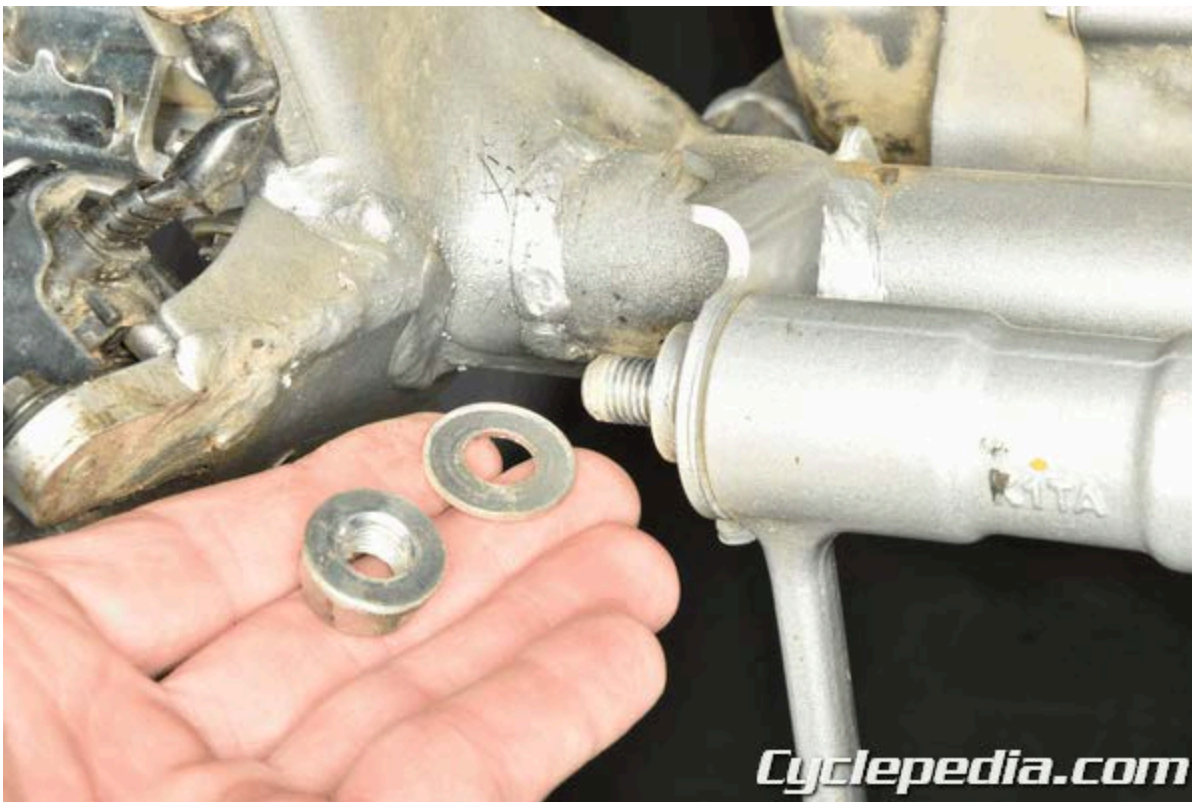


Hold the bolt from turning using a 14 mm socket and tighten the nut to specification using a 17 mm socket.

**Shock arm-to-swing arm nut (self-lock nut, oil threads):** 74 N-m (7.5 kgf-m, 55 ft-lb)

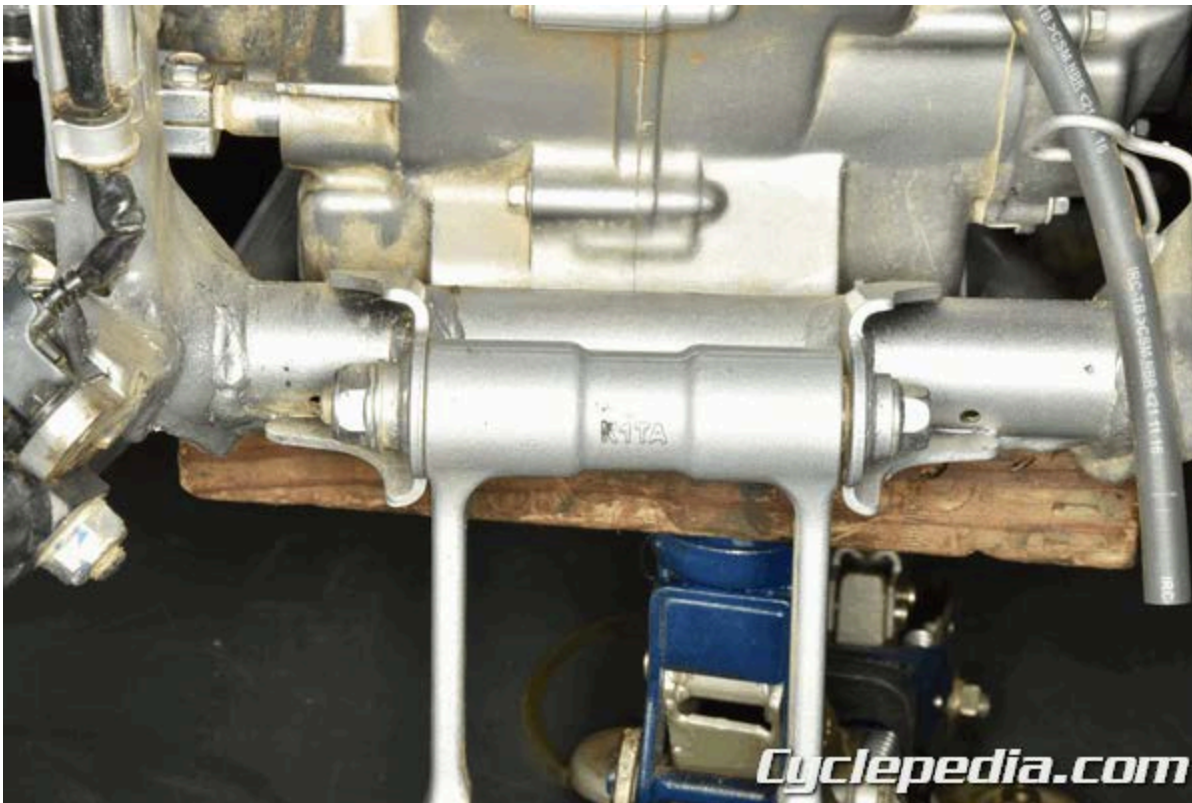


Install the shock link to the frame and install the retaining bolt from the right hand side.



Install the nut and washer.





Hold the bolt with a 14 mm socket and tighten the nut to specification using a 17 mm socket.

**Shock link bolt, frame side (self-lock nut):** 44 N-m (4.5 kgf-m, 32 ft-lb)



Align the lower end of the shock absorber with the bore in the shock arm and insert the bolt, also from the right side of the chassis. Hold the bolt from turning using a 14 mm socket.



Then install the lower shock mounting nut and tighten to specification using a 17 mm socket.

**Shock absorber lower nut (self-lock nut):** 44 N-m (4.5 kgf-m, 32 ft-lb)



Pivot the shock link into position and insert the link-to-arm mounting bolt from the right side. Hold the bolt from turning using a 14 mm socket.





Install the nut and tighten to specification using a 17 mm socket.

**Shock link bolt, shock arm side (self-lock nut):** 44 N-m (4.5 kgf-m, 32 ft-lb)

Lower the motorcycle and check for proper swing arm linkage action.  
URLs in this post:

[1] Rear Brake Pedal: <https://www.cyclepedia.com/manuals/online/cpp-323/front-brake/brake-pedal/>

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ABS Components

## Component Locations and Descriptions

### Suggested Tools and Supplies

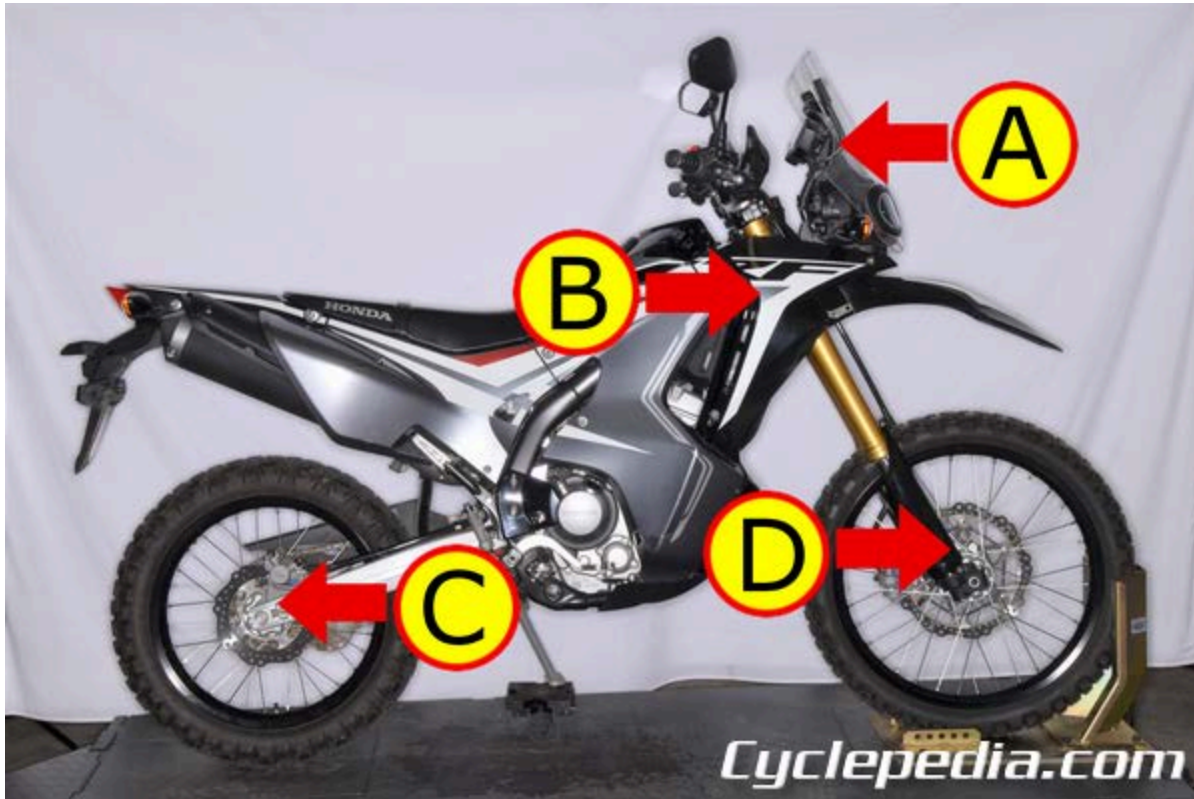
8 mm Socket

Flare Nut Wrench Set

Metric Socket Set and Ratchet

Nitrile Gloves

Safety Glasses



The ABS system consists of a few key electromechanical components as follows:

A – Rear ABS Cancel Switch – the rear ABS cancel switch can be used by the operator to shut off ABS function to the rear wheel allowing the wheel to be locked or slid in operation off-road. It is mounted by the instrument cluster.

B – ABS Modulator – the ABS modulator is both the brains and the brawn for the ABS system. It receives signals from the wheel rotation sensors and modulates the hydraulic brake pressure in the front and rear brake circuits to prevent lock-up. It is mounted to a bracket under the right fuel tank shroud, just inboard of the coolant reservoir tank and right above the horn.

C – Rear Wheel Rotation Sensor and Tone Ring – the rear wheel rotation sensor is mounted to the bottom rear of the rear caliper mounting bracket at the right rear of the swing arm. It is positioned so that it can sense the tone ring which is mounted at the inner diameter of the rear brake rotor.

D – Front Wheel Rotation Sensor and Tone Ring – the front wheel rotation sensor is mounted to the top of the left fork axle housing bracket. It is positioned so that it can sense the tone ring which is mounted at the inner diameter of the front brake rotor.

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

Note: Because a CRF300LA/LRA was not available for complete tear-down at production time, many of the photos from this section show the same or similar components as installed on other Honda models or the locations of the components. Differences are noted where applicable.



## Service Information

The ABS modulator may be damaged if dropped. Also, it may be damaged if a connector is unplugged when current is flowing (the voltage spike may damage the control unit). Always turn the ignition OFF before servicing any component in the system.

Most non-electronic components of the ABS system are serviced in the same manner as the hydraulic components of the non-ABS system. Any differences are noted in the relevant topics.

The ABS control unit is integrated into the modulator assembly. Do not attempt to disassemble the ABS modulator. Replace the ABS modulator as an assembly if it is found faulty.

The ABS control unit performs a pre-start self-diagnosis to check whether the ABS functions normally until the vehicle speed reaches 30 km/h (19 mph). After the pre-start self-diagnosis the ABS control unit monitors the ABS functions and the vehicle running condition constantly until the ignition switch is turned OFF (ordinary self-diagnosis).

When the ABS control unit detects a problem, it stops the ABS function and switches back to the conventional brake operation, and the ABS indicator in the instrument cluster blinks or stays on. Take care during the test ride as ABS function will not be available.

Similarly, if the ABS control unit detects a problem with the rear ABS OFF indicator circuit, it will stop the rear ABS OFF mode from functioning (ironically meaning ABS will still be active, unless the ABS light is also on).

Always inspect and troubleshoot the ABS system according to a logical flow. Write down the DTC and probably faulty part before starting diagnosis.

Always use a fully charged battery. Do not attempt troubleshooting with a charger connected to the battery.

After troubleshooting erase the DTC and perform the pre-start diagnosis to be sure that the ABS indicator is operating normally.

Troubles not resulting from a faulty a faulty ABS system (i.e. brake disc squeak, unevenly worn brake pads, etc.) cannot be recognized by the ABS diagnosis system and must be resolved the same manner as with any non-ABS hydraulic brake system.

When a wheel speed sensor problem is suspected start by inspection for iron or other magnetic deposits/contaminants between the pulser ring and speed sensor. Also check for the presence of pulser slot obstructions, as well as the installed condition of the ring and sensor. Check the sensor itself for damage or deformation at the tip.

When the wheel speed sensor and/or pulser ring is replaced, be sure to check the air gap to ensure proper function.

## ABS Modulator

### Replacement

**WARNING: Brake fluid is very caustic and can cause damage to paint, chrome and plastic. Wipe up any spills immediately.**

Make sure the ignition switch is in the off position to protect the electronics in the ABS modulator control unit.

Remove or perform the following for access:

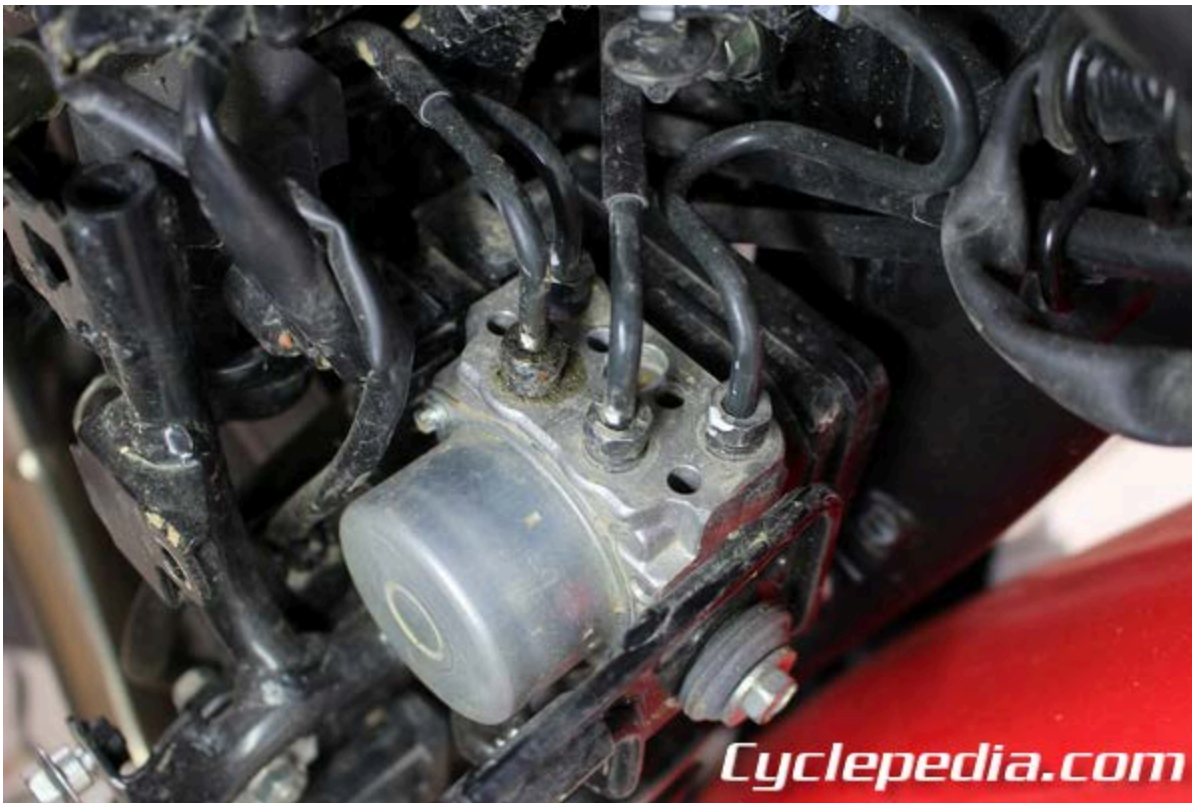
Bodywork <sup>[1]</sup> (left fuel tank shroud)

Coolant Reserve Tank <sup>[2]</sup>

Charging System <sup>[3]</sup> (remove the regulator/rectifier)

Horn <sup>[4]</sup>

Note: Though the brake lines are sized and fitted for location, it is best to also note the location of each ABS modulator brake line fitting before disconnecting them to ensure proper placement during installation. Especially if one or more line is damaged and must be replaced.



Clean the area around the connector and the hydraulic lines to prevent contaminating the electrical or hydraulic systems. Place a rag under the brake pipe fittings at the modulator to catch any remaining brake fluid. Using a flare nut wrench, loosen and remove the brake pipe joints from the hydraulic unit. Pull the brake pipes away from the unit and cover them with a clean plastic bag to prevent system contamination or damage.

**WARNING: Use extreme care not to bend or damage any of the brake pipes during service.**



Pull up on the lock lever on the left side of the connector. Unplug the connector from the ABS modulator.



Note: Be sure to turn the lock lever to the side while pressing the lock tab to help release the connector.



Remove the two mounting bolts that secure the modulator bracket. The bolts are threaded (one vertically and one horizontally) each through a collar and rubber mount which is used to help isolate and protect the module from vibration. Then remove the modulator from the bracket.

Upon installation, position the modulator with the mounting rubbers and collars, then install and tighten the mounting bolts securely.



Remove the covers one by one, apply a small dab of brake fluid to the joint threads, and carefully thread the brake lines. Once threaded by hand, carefully tighten the brake pipe joints to specification.

**Brake pipe joint nut (apply brake fluid to threads):** 14 N-m (1.4 kgf-m, 10 lbf-ft)

When plugging in the modulator connector make sure the ignition switch is still OFF, fully seat the lock lever against the wire side of the connector, then press it straight into position until the lock tab clicks.

Properly fill and bleed the hydraulic brake system. See the [Brake Fluid](#) <sup>[5]</sup> topic for more information.

## Front Wheel Rotation Sensor



Note: Like most sensors, the front wheel rotation sensor is fragile is mishandled. Never strike or bang on it with a tool or allow it to fall on a hard surface. The sensor should be kept as clean as possible of dirt, mud, or other contaminants to prevent malfunction.

### Replacement

Remove the following for access:

[Bodywork](#) <sup>[1]</sup> (left fuel tank shroud)

[Front Wheel](#) <sup>[6]</sup>

Follow the front wheel speed sensor wire up the left fork and unplug the sensor 2P (Black) connector from the harness. Release the sensor harness from the wire bands and guides that run down the fork along the brake line. Remove the bolts from the brackets as needed to free the harness using an 8 mm socket.

The wheel speed sensor itself is bolted to a bracket on the bottom left of the fork, just above the axle mount tab on the left fork.

Remove the single bolt and carefully free the sensor from the fork.



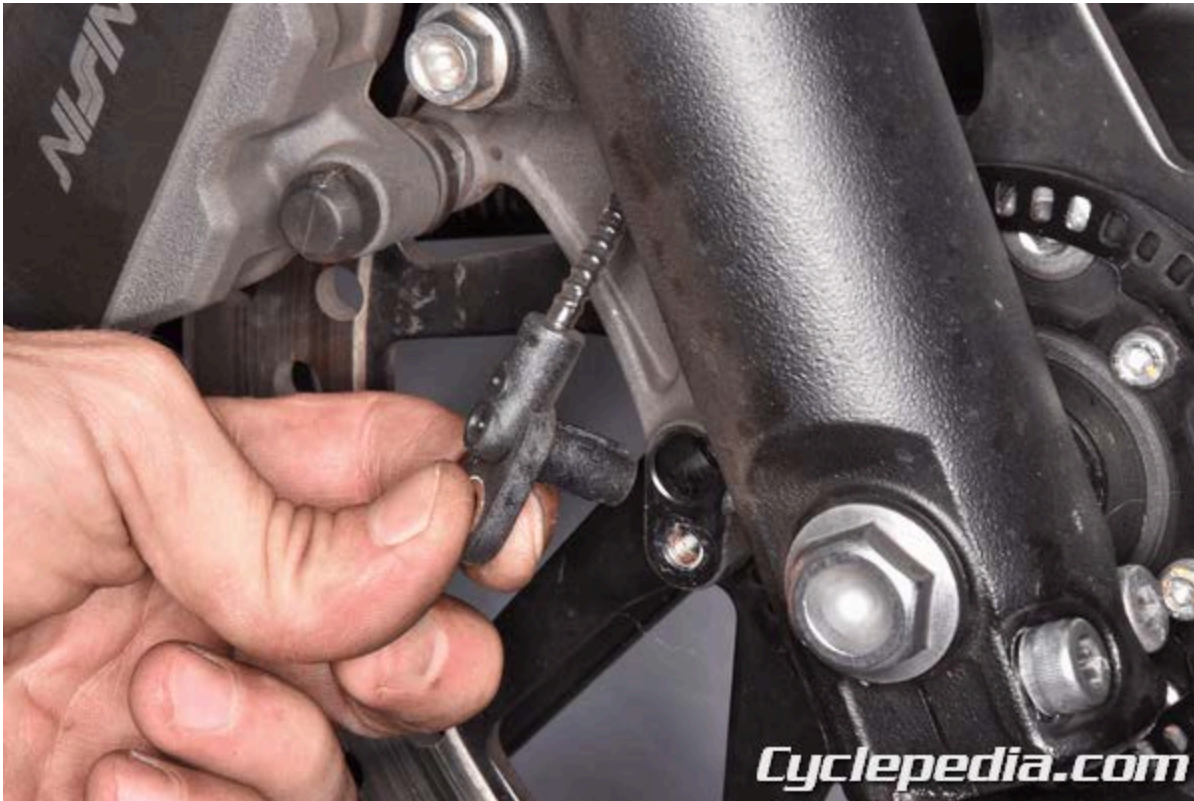


Photo of typical Honda speed sensor from another model for reference.

During installation clean the area around the sensor mounting hole thoroughly and make sure no foreign material is allowed to enter the hole that might contaminate the sensor. Install the sensor and tighten the bolt securely, then route and secure the harness using the guides, crimps, and clamps listed earlier.

Check the sensor air gap as noted following this procedure, then install the following which were removed for access:

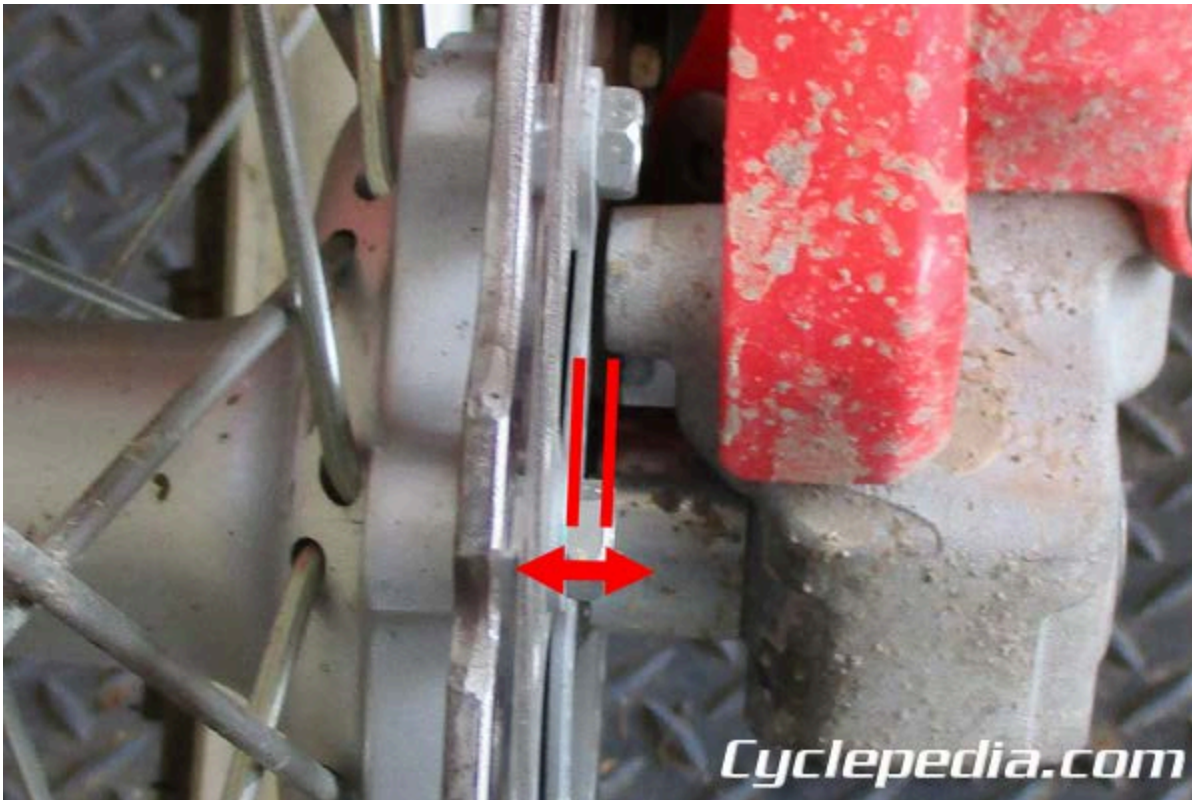
Front Wheel <sup>[6]</sup>

Bodywork <sup>[1]</sup> (left fuel tank shroud)

**Checking Air Gap**



The end of the wheel rotation sensor must be a specific distance from the tone ring in order for it to operate correctly.



The sensor mounting is non-adjustable and if the distance is incorrect look for a mechanical reason (damaged sensor, fork, wheel, or tone ring).





To check the air gap secure the motorcycle with the front wheel off the ground, then insert a feeler gauge between the tip of the sensor and the tone ring to determine the gap (typical Honda model shown). Measure a several points around the tone ring to be sure there is no variance that is out of gap. If the gap is incorrect, replace damaged components as necessary.

**Front Wheel Speed Sensor Air Gap:** 0.8 – 1.4 mm (0.03 – 0.06 in)

### Replacing Tone Ring



The tone ring is mounted to the wheel hub at the inner diameter of the rotor and on top of the rotor itself sharing the mounting bolts. So front brake rotor removal (or at least removal of its bolts which is essentially the same thing) is necessary to access/service the ring. See the [Front Rotor](#) <sup>[7]</sup> topic for more information on replacement.



Image of a typical Honda tone ring for reference.

## Rear Wheel Rotation Sensor





The rear wheel speed sensor (circle) is secured by a single bolt to the brake caliper mounting bracket. Because it is tucked into the bracket just inboard of the swing arm, the rear wheel must be removed to free the bracket for access if sensor removal is required.

Note: Like most sensors, the rear wheel rotation sensor is fragile if mishandled. Never strike or bang on it with a tool or allow it to fall on a hard surface. The sensor should be kept as clean as possible of dirt, mud, or other contaminants to prevent malfunction.

## Replacement

Note: Sensor harness runs up the right side of the swing arm through guides along with the brake line. It then crosses over to the left side of the bike and the connector can be found in a protective boot just above the rear battery just in front of the large frame crossmember.

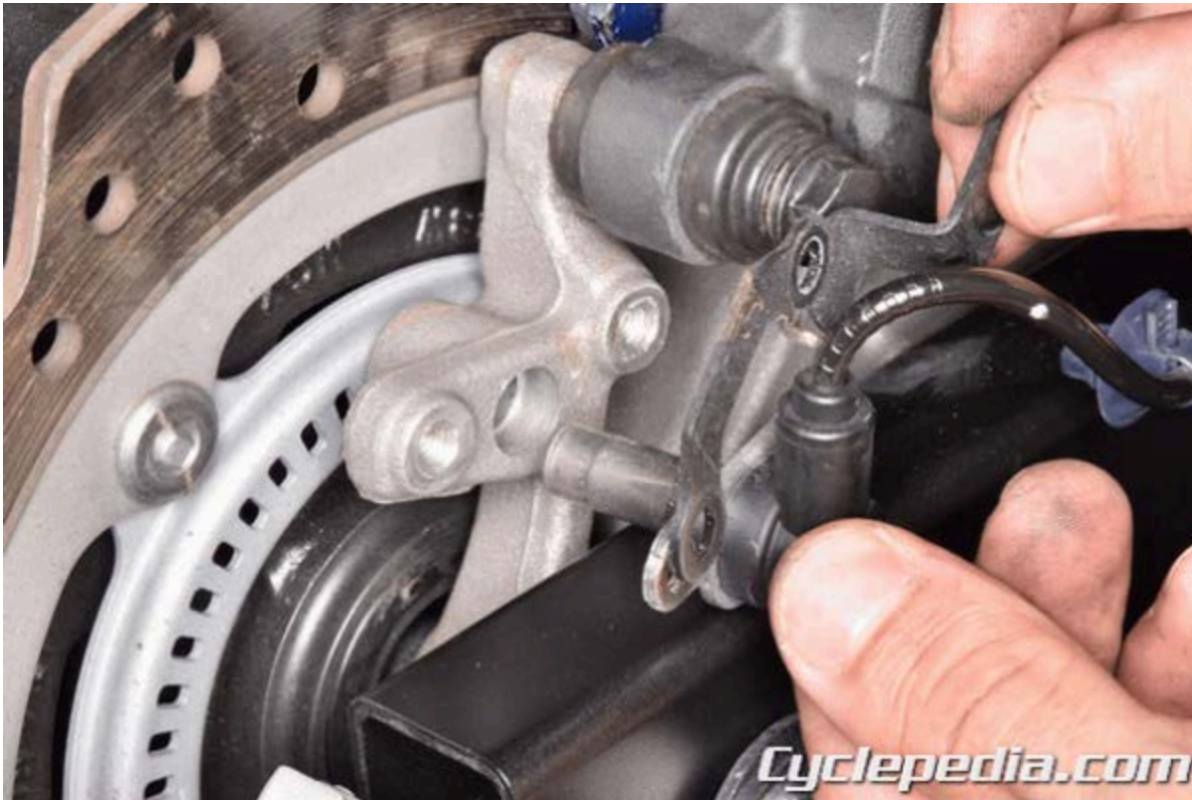
Remove the following for access to the harness and sensor:

Seat <sup>[8]</sup>

Bodywork <sup>[1]</sup> (left side cover)

Rear Wheel <sup>[9]</sup>

Remove the bolt and speed sensor from the brake caliper bracket. Follow the harness up into the bike, freeing it from the guides and clips as needed. Locate the rear wheel speed sensor 2P (Black) connector in the protective boot above the battery and disconnect it from the harness.



During installation clean the area around the sensor mounting hole thoroughly and make sure no foreign material is allowed to enter the hole that might contaminate the sensor (typical Honda rear wheel speed sensor shown for reference). Install the sensor, then tighten the sensor mounting bolt securely.



Route the sensor wiring as noted during removal making sure to install and tighten the various clamps/clips and guides with the retaining bolts.

Check the sensor air gap as noted following in this section.

Install the following which were removed for access:

Rear Wheel <sup>[9]</sup>

Bodywork <sup>[1]</sup> (remove the rear lower fender)

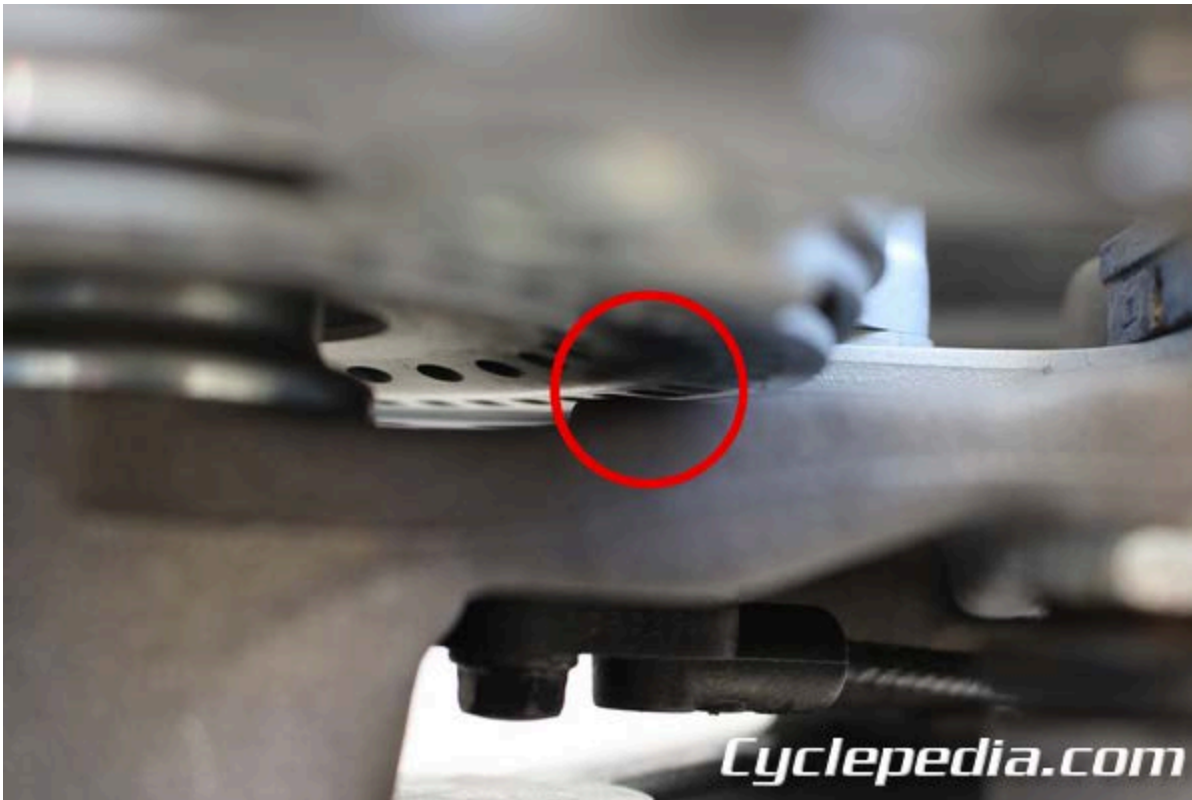
Seat <sup>[8]</sup>

### **Checking Air Gap**



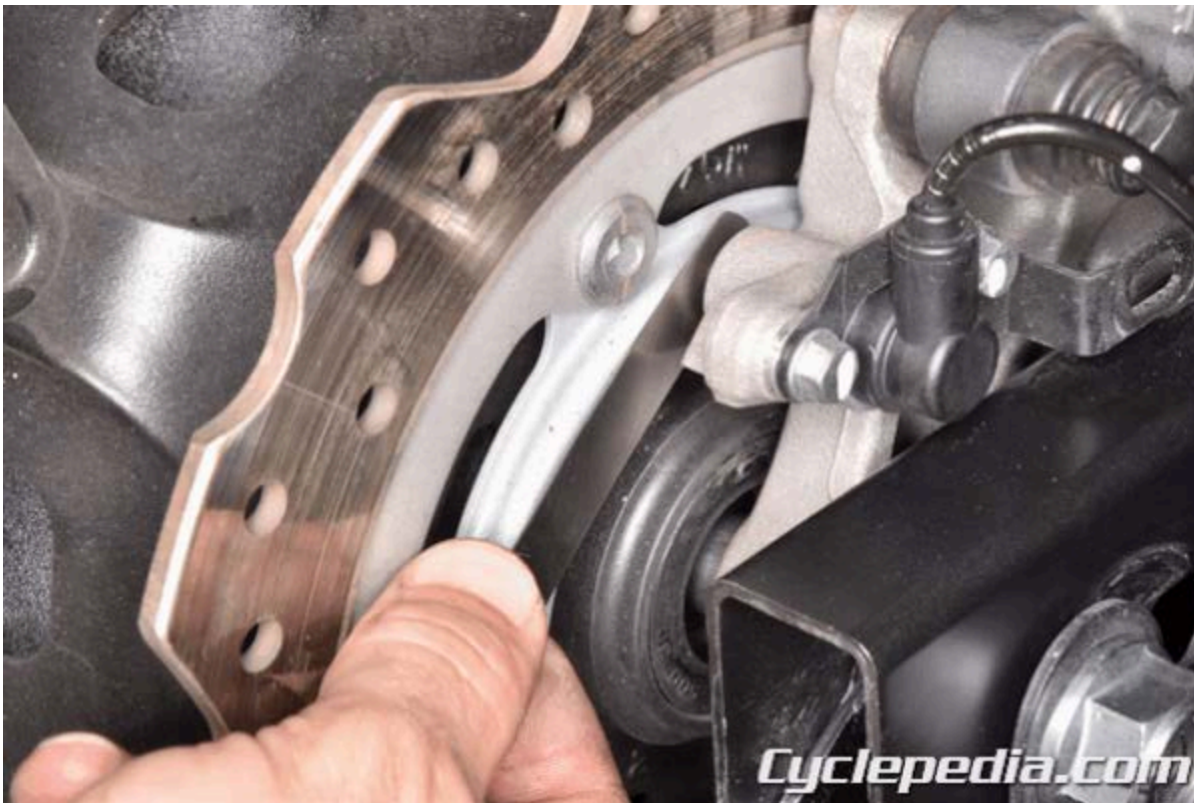


The end of the wheel rotation sensor must be a specific distance from the tone ring in order for it to operate correctly. Arrow in the accompanying photo points in the direction of the gap.



Measure the gap from just above or below the swing arm.

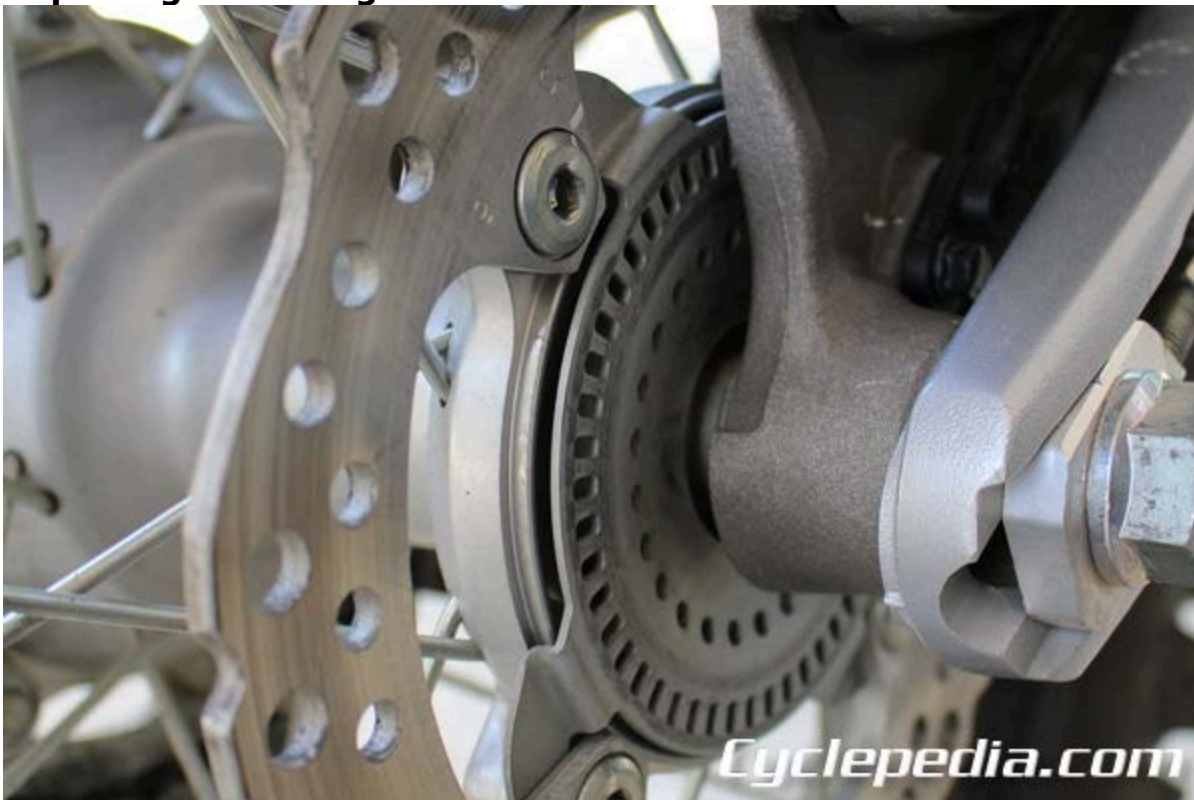
Note: The sensor mounting is non-adjustable and if the distance is incorrect look for a mechanical reason (damaged sensor, fork, wheel, or tone ring).



To check the air gap secure the motorcycle with the rear wheel off the ground, then insert a feeler gauge between the tip of the sensor and the tone ring to determine the gap (typical Honda model shown). Measure a several points around the tone ring to be sure there is no variance that is out of gap. If the gap is incorrect, replace damaged components as necessary.

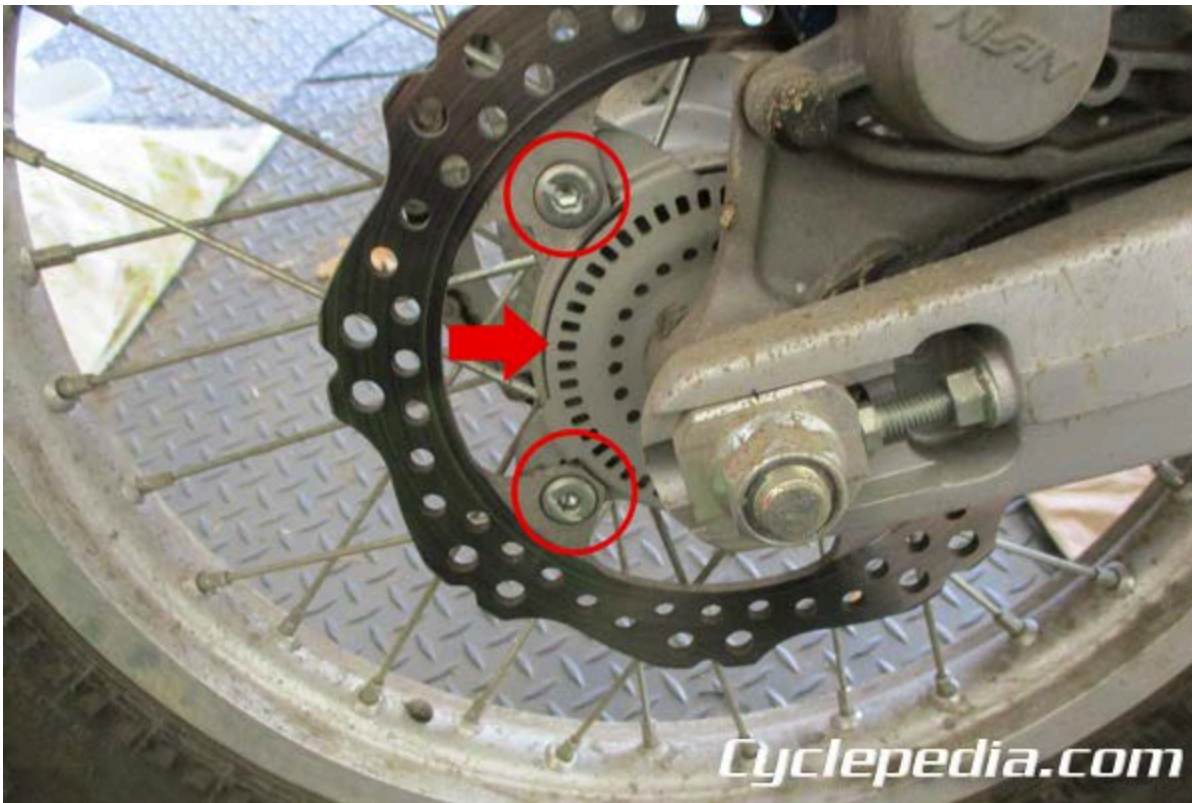
**Rear Wheel Speed Sensor Air Gap:** 0.7 – 1.3 mm (0.03 – 0.05 in)

### Replacing Tone Ring



The tone ring is mounted to the wheel hub at the inner diameter of the rotor.





It is secured just underneath the rotor itself sharing the mounting bolts (circles). So rear brake rotor removal is necessary to access/service the ring. See the [Rear Rotor](#) <sup>[10]</sup> topic for more information on replacement.



Image of a typical Honda tone ring for reference.

## **Rear ABS Cancel Switch**



As noted earlier a rear ABS cancel switch is mounted by the instrument cluster (with a single bolt threaded into the back of the meter) and can be used to temporarily shut off ABS operation to the rear wheel for off-road operation. Please see the Switches <sup>[11]</sup> topic for more information on servicing the Rear ABS Cancel Switch.

URLs in this post:

[1] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

[2] Coolant Reserve Tank: <https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/coolant-reserve-tank/>

[3] Charging System: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/charging-system/>

[4] Horn: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/horn/>

[5] Brake Fluid: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/brake-fluid/>

[6] Front Wheel: <https://www.cyclepedia.com/manuals/online/cpp-323/wheels/front-wheel/>

[7] Front Rotor: <https://www.cyclepedia.com/manuals/online/cpp-323/front-brake/front-brake-rotor/>

[8] Seat: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/seat/>

[9] Rear Wheel: <https://www.cyclepedia.com/manuals/online/cpp-323/wheels/rear-wheel/>

[10] Rear Rotor: <https://www.cyclepedia.com/manuals/online/cpp-323/front-brake/rear-brake-rotor/>

[11] Switches: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/switches/>

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## ABS Self-Diagnostics

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

### Suggested Tools and Supplies

Nitrile Gloves

Safety Glasses

## ABS Indicator and Rear ABS OFF Indicator Lights



The LA and LRA models are equipped with two indicator lights that are part of the ABS system, the Rear ABS OFF indicator light (A) and the main ABS Indicator light (B).

NOTE: Indicator light locations will vary slightly with model. Earlier model CRF shown in accompanying photos.

Both lights illuminate as a self-check when the ignition switch is first turned ON. The Rear ABS OFF light should shut off after a second or two like most of the dash indicator lights. The ABS indicator light should shut off shortly after the motorcycle starts moving.

The ABS pre-start self-diagnosis system checks the electrical system as well as the operating status of the modulator at each start-up. When there is any abnormality, the problem and the associated part can be detected by reading the Diagnostic Trouble Code (DTC).

When the motorcycle is running, pulse signals generated at the front and rear wheel speed sensors are sent to the ABS control unit. When the vehicle speed reaches approximately 6 km/h (4 mph), the ABS control unit operates the pump motor to check it. When the vehicle speed reaches 10 km/h (6 mph), the ABS control unit turns off the ABS indicator if the system is normal and the pre-start self-diagnosis is complete.



If any problem is detected during operation, the ABS indicator will illuminate to notify the rider that a problem has been detected.

If the ABS indicators do not come on when the ignition is first turned ON, or the ABS indicator stays on after the pre-start self-diagnosis is completed even if the ABS system is normal, then the ABS indicator circuit may be faulty.

Note: Although the Rear ABS Off indicator is part of the initial self-check, once the motorcycle is underway it serves the opposite function in that it does not indicate trouble, it indicates that the operator has manually turned the ABS off for the rear wheel.

### **Pre-Start Self-Diagnosis (Daily Check)**

Turn the ignition switch ON and set the engine stop switch to the run position.

Make sure the ABS indicator light and Rear ABS OFF indicator light both illuminate.

After the CPU initial settings check completes (approximately 2 seconds), the Rear ABS OFF indicator light should go out (if the system is normal).

Start the engine.

Ride the motorcycle and increase speed to about 10 km/h (6 mph).

The ABS is normal if the main ABS indicator light also goes out.

### **Self-Diagnostic Procedures**

Before beginning electronic troubleshooting of the system, make sure the hydraulic and mechanical components of the system are all in good shape and working properly:

- Brake fluid fresh and full
- System is free of leaks
- Brake lever and pedal function properly
- Brake pads and discs are in good shape



Front and rear wheels rotate freely and smoothly without any brake drag  
Wheel bearings are without any excessive play, axle is not bent or does not contain more runout than specified.

### **DTC Readout**

Like the PGM-FI system, the Honda ABS system diagnostic trouble codes can be read through one of two methods, either by using the Honda MCS (motorcycle communication system, formerly known as the HDS pocket tester) or by reading flashes of the ABS indicator light.

Keep the following in mind when accessing codes:

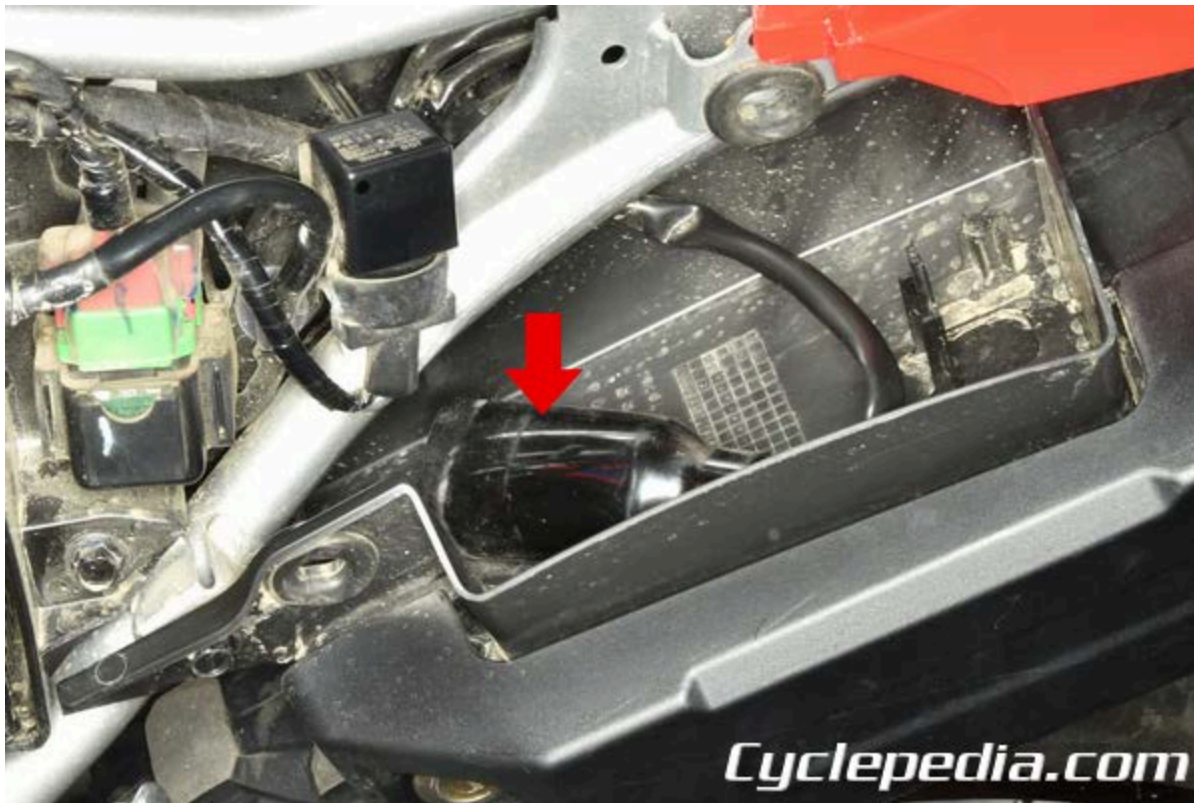
The DTC is not erased by turning the ignition switch OFF while the DTC is being output. Note that turning the ignition switch ON again does not indicate the DTC. To show the DTC again, repeat the DTC readout procedures from the beginning.

Be sure to record any indicated DTCs.

After the diagnostic troubleshooting and repairs, erase the DTC and perform the pre-start self-diagnosis procedure to be sure there is no remaining problem with the ABS.

Do not apply the brake during the DTC readout.

To read any DTC, first turn the ignition switch to the OFF position.



Access the DLC which is found under a rubber protective boot in the tray on the left rear side of the bike just above the tool box. It is just behind the left side cover which must be removed for access. See the [Bodywork](#) <sup>[1]</sup> topic for more information.



Pull the DLC connector free of the rubber boot.



Remove the dummy connector from the DLC.

If the Honda MCS is available, connect the MCS to the DLC and read the code(s) using the menu on the MCS.

If the Honda MCS is not available, install a suitable jumper tool like the SCS to connect/short the Blue/Black and Green wires of the DLC with the special tool.



## Special Tool – SCS Service connector: 070PZ-ZY30100



Turn the ignition switch ON and the engine stop switch to RUN, then check the ABS indicator light. It should first illuminate for 2 seconds then:

If the ABS control unit has any DTC in its memory, the ABS indicator will go out for 3.6 seconds, then start to flash the code or codes that are present using a series of long (1.3 second) or short (0.3 second) flashes. See the DTC Indication Pattern in this topic for information in reading the ABS indicator blinks, and the ABS DTC Index in this topic for more information on interpreting the DTC.

If the ABS control unit has no stored DTC, the ABS indicator will go out for 3.6 seconds, then it will illuminate and stay on steady.

### DTC Indication Pattern

When using the ABS indicator light to display codes the DTC's are shown by a series of long and short flashes of the light separated by pauses. The long (1.3 second) blinks indicate the tens digit (they will be separated from a short blink by a 0.4 second pause, or another long blink by a 0.5 second pause), while the short (0.3 second) blinks that follow represent the units digit of a given code. Another 3.6 second pause (like that which came before the codes started to display) will separate one code from another or if there is only one code stored, the one code from itself when repeating.

Read the tens digit and units digit as the ABS indicator light flashes.

For example: The code 23 is indicated by the ABS indicator light blinking two long flashes, then three short flashes.

When there are a number of problems, all the service codes can be stored and the display will begin starting from the lowest number service code in the numerical order. Then after completing all codes, the display is repeated until the SCS connector is removed.

So if there are two codes stored (say 12 and 23) the codes will flash 12, then 23, then 12, then 23 etc.

### Erasing Codes

Once the repairs have been made the DTCs should be erased and the system checked again to make sure there are no further faults.

Note: The stored DTC cannot be erased by simply disconnecting the negative battery cable.

Codes can either be erased using the menu on the Honda MCS (Note, codes should only be erased with the MCS while the engine is stopped) or they can be erased using the SCS and the following procedure:

Attach the SCS connector to the DLC as with the DTC Readout procedure listed earlier in this section.

While squeezing the brake lever, turn the ignition switch ON and set the engine stop switch to the run position. The ABS indicator light should come on for 2 seconds and then go out again.

Release the brake lever immediately after the ABS indicator goes off. The ABS indicator should come on again.

Squeeze the brake lever immediately after the ABS indicator comes on. The ABS indicator should go out again.

Release the brake lever immediately after the ABS indicator goes out again.

If the DTC has been successfully erased the ABS indicator should blink 2 times and then stay on.

Note: If the ABS indicator does not blink 2 times, the self-diagnostic memory has not been erased and the erase procedure should be started all over.

Once the DTC has been erased, turn the ignition OFF and remove the SCS connector from the DLC.

Perform the Pre-Start Self-Diagnosis (Daily Check) procedure as detailed above to be sure there is no remaining problem with the ABS.

## Diagnostic Trouble Codes (DTCs)

The ABS indicator light might blink because of the following mechanical problems:

Incorrect tire pressure

Tires other than recommended are installed (incorrect size)

Deformation of the wheel or tire

The ABS indicator light might blink while riding under the following conditions. If so this is considered a temporary failure, but confirm by erasing the DTC (see above) then test-ride the motorcycle above 30 km/h (19 mph) and check the DTC:

The motorcycle has been continuously run on bumpy roads

The front wheel leaves the ground for a long time when riding (wheelie)

Only either the front or rear wheel rotates

The ABS operates continuously

The ABS control unit has been disrupted by an extremely powerful radio wave (electromagnetic interference)

DTC	Function failure	Symptom/Fail-safe function
–	ABS indicator malfunction <ul style="list-style-type: none"><li>• ABS modulator voltage input line</li><li>• Indicator related wires</li><li>• Combination meter</li><li>• ABS modulator</li><li>• ABS ECU fuse (10 A)</li></ul>	ABS indicator never comes ON at all or ABS indicator stays ON at all times
1 – 1	Front wheel speed sensor circuit malfunction <ul style="list-style-type: none"><li>• Wheel speed sensor or related wires</li></ul>	Stops ABS operation
1 – 2	Front wheel speed sensor malfunction* <ul style="list-style-type: none"><li>• Wheel speed sensor, pulser ring, or related wires</li><li>• Electromagnetic interference</li></ul>	Stops ABS operation



1 – 3	Rear wheel speed sensor circuit malfunction	Stops ABS operation
	• Wheel speed sensor or related wires	
	Rear wheel speed sensor malfunction*	
1 – 4	• Wheel speed sensor, pulser ring, or related wires	Stops ABS operation
	• Electromagnetic interference	
2 – 1	Front pulser ring*	Stops ABS operation
	• Pulser ring or related wires	
2 – 3	Rear pulser ring*	Stops ABS operation
	• Pulser ring or related wires	
3 – 1		Stops ABS operation
3 – 2		Stops ABS operation
3 – 3	Solenoid valve malfunction (ABS modulator)	Stops ABS operation
3 – 4		Stops ABS operation

\*Note: Fault can only be set during operation (will not be set during a pre-start check)

DTCs continued	Function failure	Symptom/Fail-safe function
4 – 1	Front wheel lock*	Stops ABS operation
	• Riding condition	
4 – 2	Front wheel lock (Wheelie)*	Stops ABS operation
	• Riding condition	
4 – 3	Rear wheel lock*	Stops ABS operation
	• Riding condition	
5 – 1	Pump motor lock	Stops ABS operation
	• Pump motor (ABS modulator) or related wires	
	• MR+B fuse (30A)	
5 – 2	Pump motor stuck off	Stops ABS operation
	• Pump motor (ABS modulator) or related wires	
	• MR+B fuse (30A)	
5 – 3	Pump motor stuck on	Stops ABS operation
	• Pump motor (ABS modulator) or related wires	
	• MR+B fuse (30A)	
5 – 4	Power supply relay malfunction	Stops ABS operation
	• Valve relay (ABS modulator) or related wires	
	• FSR+B fuse (30 A)	

\*Note: Fault can only be set during operation (will not be set during a pre-start check)

DTCs continued	Function failure	Symptom/Fail-safe function
6 – 1	Power circuit under voltage	Stops ABS operation
	• Input voltage too low	
	• ABS MAIN fuse (10 A)	
6 – 2	Power circuit over voltage	Stops ABS operation
	• Input voltage too high	
7 – 1	Tire malfunction*	Stops ABS operation
	• Tire size	
	• Incorrect sprocket gear ratio (other than recommended installed)	
8 – 1	ABS control unit	Stops ABS operation
	• ABS control unit malfunction (ABS modulator)	
8 – 2	Rear ABS off indicator	Rear ABS off mode function does not work
	• Rear ABS off indicator or related wires	

\*Note: Fault can only be set during operation (will not be set during a pre-start check)

URLs in this post:

[1] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>





## - Honda CRF300L Service Manual

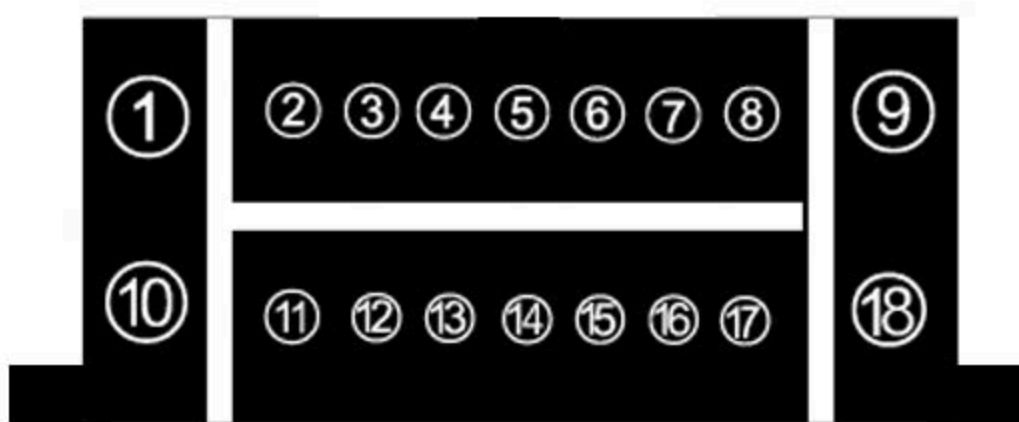
### ABS DTC Troubleshooting

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### Suggested Tools and Supplies

Meter  
Jumper Wires  
Nitrile Gloves  
Safety Glasses

### ABS Modulator (Control Unit) Terminals



ABS MODULATOR PINOUT

ABS modulator terminal pinout diagram.



ABS modulator wiring harness.



ABS modulator wiring harness terminal pinout diagram

Use the following terminal identifications when testing ABS modulator circuits.

Motor GND (ground) – G/R

–  
MODE\_IND (rear ABS off indicator light) – Bl/W



BLS (brake light sensing circuit) – G/Y  
DIAG (DLC) – Y  
RVW B+ (rear wheel speed sensor) – Bu  
IG (ABS Main 10A fuse) – BI  
FVW B+ (front wheel speed sensor) – Bu/Y  
MR+B (30A fuse) – R/BI  
GND (ground) – G/Y

–  
MODE\_SW (rear ABS cancel switch) – G/BI  
IND (ABS indicator light) – Bu/R  
SCS (DLC connector) – Bu/BI  
RVWS (rear wheel speed sensor) – W

–  
FVWS (front wheel speed sensor) – W/Y  
FSR+B (30A fuse) – R/W

When testing at the ABS modulator connector be sure to note the following:

The left fuel tank shroud must be removed for access to the connector (see the [Bodywork](#) <sup>[1]</sup> topic for more information).

The ignition switch must be turned OFF anytime the connector is unplugged or engaged.



Always clean the area around the connector before removal to make sure the terminals do not become contaminated.



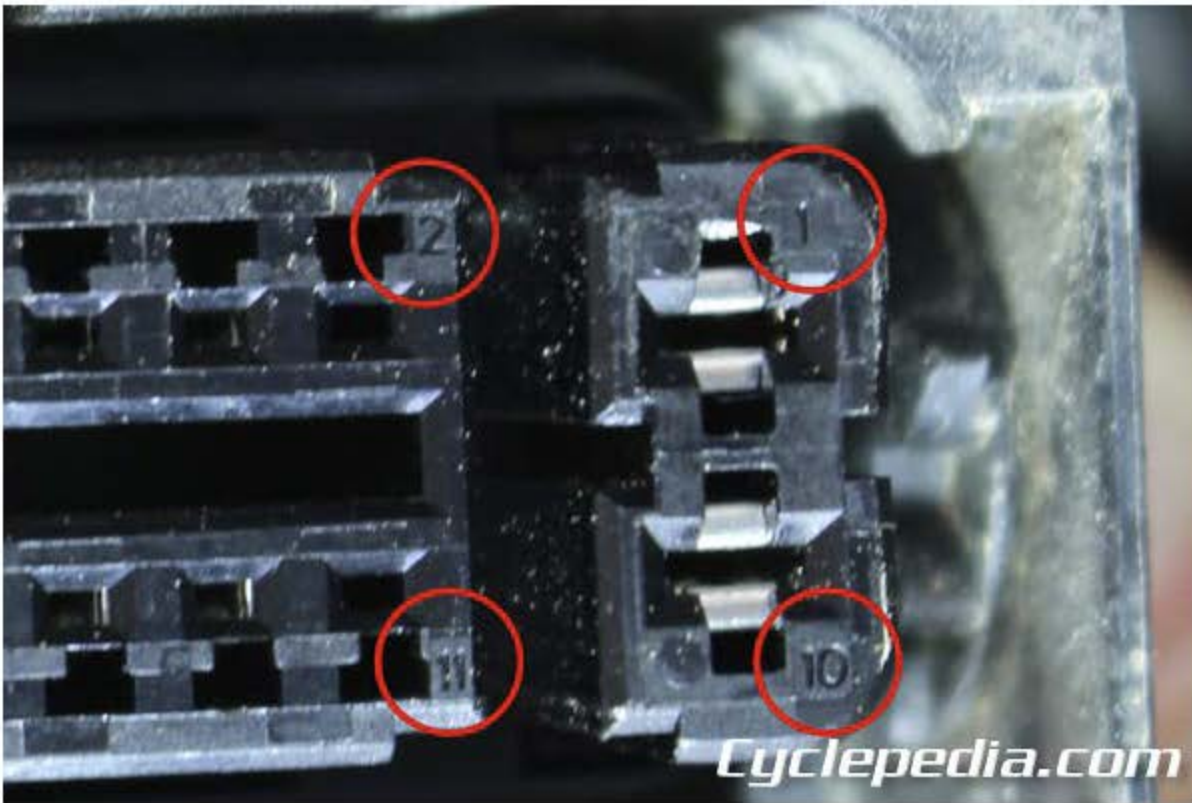
Be sure to turn the lock lever to the side while pressing the lock tab to help release the connector. Make sure the lever is turned all the way.

When plugging in the modulator connector make sure the ignition switch is still OFF, fully seat the lock lever against the wire side of the connector, then press it straight into position until the lock tab clicks.



Remember that a faulty ABS function is often related to a poorly connected or corroded terminal. Always check all connections before testing.





Note: The ABS modulator wire harness connector is labelled to help identify the proper terminals during testing.

When testing the ABS modulator harness for all terminals except 9 and 18 on the top/end, use the test probe to ensure a good connection and prevent damage to the terminals.

**Special Tool – Test probe:** 07ZAJ-RDJA110

Also during all ABS troubleshooting procedures keep the following in mind:

Before troubleshooting check for a burned fuse and for proper operation of the combination meter. Keep the ignition switch OFF unless otherwise directed by the test procedure.

Only test using a fully charged battery. Do not make test connections with a charger connected to the battery.

If any DTC indicates a possible fault with the ABS modulator assembly, first check the wiring harness and connectors before replacing it.

After troubleshooting erase the DTC and perform a test-ride to confirm the ABS indicator operates normally.

## **ABS Indicator Does Not Come On (When Ignition is Turned On)**



Note: Before starting this test, check the initial operation of the combination meter.

### **Step 1 Indicator Operation Inspection**

Turn the ignition switch OFF and unplug the ABS modulator black 18-P connector.

Turn the ignition switch ON with the engine stop switch set to the run position.

**Check the ABS indicator, does it illuminate?**

Yes – faulty ABS modulator

No – go to step 2

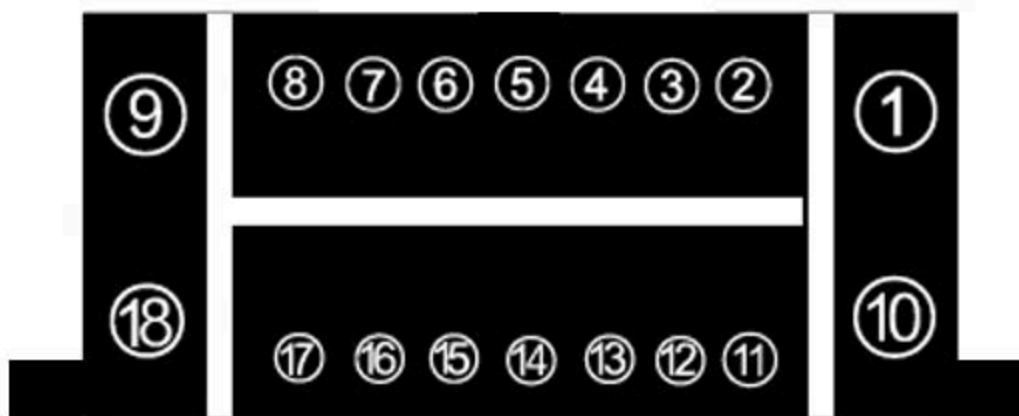
### **Step 2 Indicator Line Short Circuit Inspection**

Turn the ignition switch OFF.





Unplug the combination meter gray 28-P connector (LA shown). See the [Meter](#) <sup>[2]</sup> topic for more information.



### WIRE HARNESS TERMINALS

Using a DVOM set to check resistance/continuity and a test probe, check for continuity between the wire harness side of the ABS modulator black 18-P connector Terminal 13 (Blue/Red wire) and a good ground.

**Special Tool – Test probe:** 07ZAJ-RDJA110

**Is there continuity between Terminal 13 and ground?**

Yes – short circuit in the Blue/Red wire

No – faulty combination meter

## **ABS Indicator Stays On (When Motorcycle is Running)**

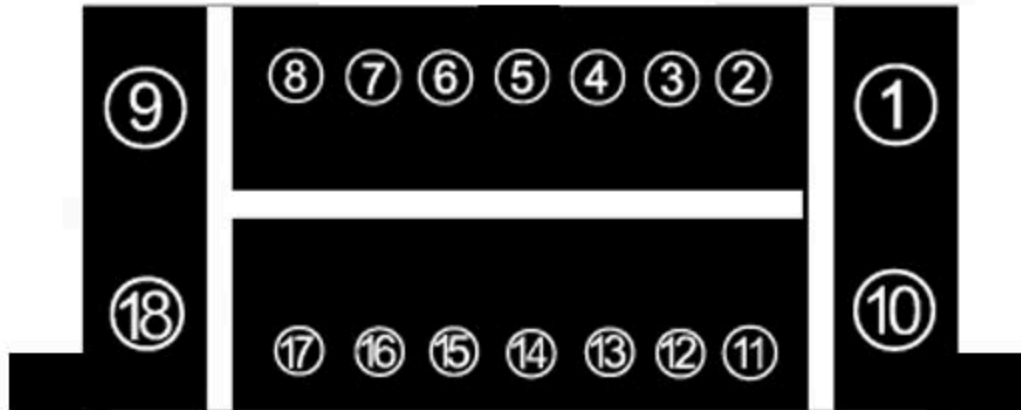
If the ABS indicator remains illuminated during operation but there is no DTC found check the indicator circuit as follows:



### **Step 1 Service Check Line Short Circuit Inspection**

Turn the ignition switch OFF and unplug the ABS modulator black 18-P connector.





### WIRE HARNESS TERMINALS

Using a DVOM set to check resistance/continuity and a test probe, check for continuity between the wire harness side of the ABS modulator black 18-P connector Terminal 14 (Blue/Black) and a good ground.

**Special Tool – Test probe:** 07ZAJ-RDJA110

**Is there continuity between Terminal 14 and ground?**

Yes – short circuit in the Blue/Black wire

No – go to step 2

#### **Step 2 Indicator Line Open Circuit Inspection**

Using a test probe and jumper lead, short the wire harness side of the ABS modulator black 18-P connector Terminal 13 (Blue/Red) to a good ground.

**Special Tool – Test probe:** 07ZAJ-RDJA110

Turn the ignition switch ON with the engine stop switch set to the run position.

**Check the ABS indicator, does it go off with the jumper connected to ground?**

Yes – go to step 3

No – open circuit in the Blue/Red or Faulty combination meter (if the wire is ok)

#### **Step 3 Modulator Ground Line Open Circuit Inspection**

Turn the ignition switch OFF.

Using a DVOM set to check resistance/continuity, check for continuity between the wire harness side of the ABS modulator black 18-P connector Terminal 1 (Green/Red) and a good ground.

**Is there continuity between Terminal 1 and ground?**

Yes – go to step 4

No – open circuit in the Green/Red wire

#### **Step 4 Fuse Inspection**

Remove the seat for access to the fuse box. See the [Seat](#) <sup>[3]</sup> topic for more information.

Remove the cover from fuse box. See the [Fuses](#) <sup>[4]</sup> topic for more information.

Check to see if the ABS MAIN (10A) fuse is blown.

**Is the ABS MAIN (10A) fuse blown?**

Yes – go to step 5

No – go to step 6

**Step 5 Power Input Line Short Circuit Inspection**

Using a DVOM set to check resistance/continuity and a test probe, with the ABS MAIN (10A) fuse removed from the box, check for continuity between the wire harness side of the ABS modulator black 18-P connector Terminal 7 (Black) and a good ground.

**Special Tool – Test probe:** 07ZAJ-RDJA110

**Is there continuity between Terminal 7 and ground?**

Yes – short circuit in Black/White wire

No – intermittent failure. Replace the ABS MAIN (10A) fuse with a new one and recheck

**Step 6 Power Input Line Open Circuit Inspection**

Install the ABS MAIN (10A) fuse back into the Fuse block.

Turn the ignition switch ON with the engine stop switch set to the run position.

Using a DVOM set to read DC volts and a test probe, measure the voltage between the wire harness side of the ABS modulator black 18-P connector Terminal 7 (Black) and a good ground.

**Special Tool – Test probe:** 07ZAJ-RDJA110

**Is there battery voltage measured between Terminal 7 (+) and ground (-)?**

Yes – faulty ABS modulator

No – open circuit in the Black wire

**DTCs 1-1, 1-2, 2-1, 4-1, or 4-2 (Front Wheel Speed Sensor/Circuit/Tone Ring/Wheel Lock)**

Note: If the ABS indicator light blinks under unusual riding conditions this is usually just a temporary failure. Erase the DTC, then test ride the motorcycle above 30 km/h (19 mph) and check that the ABS indicator operates normally.

If DTC 4-1 is indicated, check the front brake for mechanical drag.

Before checking the circuit inspect the following and repair as needed:

Check the front speed sensor and air gap. Look for loose or damaged components if incorrect. See the [ABS Components](#) <sup>[5]</sup> topic for more information.

Check the pulser ring (tone rotor). Look for looseness, damage, or debris. Repair or replace as needed.

See the [ABS Components](#) <sup>[5]</sup> topic for more information.

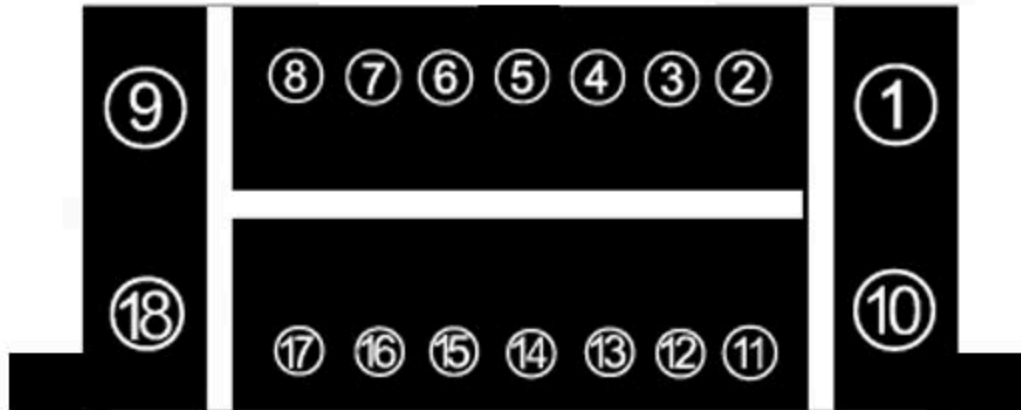
**Step 1 Speed Sensor Line Inspection**

Turn the ignition switch OFF.

Unplug the front wheel speed sensor black 2-P connector. See the [ABS Components](#) <sup>[5]</sup> topic for more information.

Make sure the ignition switch is OFF and unplug the ABS modulator black 18-P connector to protect the modulator.





### WIRE HARNESS TERMINALS

Use a pair of jumper wires to short between terminals 8 (Blue/Yellow) and 17 (White/Yellow) of the modulator 18-P connector in the wire harness.

Using a DVOM set to check resistance/continuity check for continuity across the two terminals of the front wheel speed sensor harness (Blue/Yellow wire and White/Yellow wire).

#### **Is there continuity between the harness Blue/Yellow and White/Yellow wires?**

Yes – go to step 2

No – Open circuit in the wires

#### **Step 2 Front Speed Sensor Line Short Circuit Inspection**

With the ignition switch still OFF and both harness connectors still unplugged check for shorts in the Blue, Blue/Yellow, White, and White/Yellow wires. Using a DVOM set to read continuity/resistance, check for continuity between the each terminal (Terminals 8 and 17 of the modulator connector, and the two terminals of the sensor side of the sensor connector) and a good ground.

#### **Is there continuity to ground on any of the wires?**

Yes – Faulty front wheel speed sensor or harness

No – Go to step 3

#### **Step 3 Failure Reproduction with a new Front Wheel Speed Sensor**

Install a new front wheel speed sensor. See the [ABS Components](#) <sup>[5]</sup> topic for more information.

Make sure the ignition switch is OFF, then plug in the ABS modulator black 18-P connector.

Erase the DTCs. See the [ABS Self-Diagnostics](#) <sup>[6]</sup> topic for more information.

Test ride the motorcycle above 30 km/h (19 mph) and check for DTCs again.

#### **Is DTC 1-1, 1-2, 2-1, 4-1, or 4-2 indicated?**

Yes – faulty ABS modulator

No – original speed sensor was faulty

## DTCs 1-3, 1-4, 2-3, or 4-3 (Rear Wheel Speed Sensor/Circuit/Tone Ring/Wheel Lock)

Note: If the ABS indicator light blinks under unusual riding conditions this is usually just a temporary failure. Erase the DTC, then test ride the motorcycle above 30 km/h (19 mph) and check that the ABS indicator operates normally.

If DTC 4-3 is indicated, check the rear brake for mechanical drag.

Before checking the circuit inspect the following and repair as needed:

Check the rear speed sensor and air gap. Look for loose or damaged components if incorrect. See the [ABS Components](#) <sup>[5]</sup> topic for more information.

Check the pulser ring (tone rotor). Look for looseness, damage, or debris. Repair or replace as needed.

See the [ABS Components](#) <sup>[5]</sup> topic for more information.

### Step 1 Speed Sensor Line Inspection

Turn the ignition switch OFF.

Unplug the rear wheel speed sensor black 2-P connector. See the [ABS Components](#) <sup>[5]</sup> topic for more information.

Make sure the ignition switch is OFF and unplug the ABS modulator black 18-P connector to protect the modulator.



**WIRE HARNESS TERMINALS**

Use a pair of jumper wires to short between terminals 6 (Blue) and 15 (White) of the modulator 18-P connector in the wire harness.

Using a DVOM set to check resistance/continuity check for continuity across the two terminals of the rear wheel speed sensor harness (Blue wire and White wire).

**Is there continuity between the harness Blue and White wires?**

Yes – go to step 2



No – Open circuit in the wires

### **Step 2 Rear Speed Sensor Line Short Circuit Inspection**

With the ignition switch still OFF and both harness connectors still unplugged check for shorts in the Blue and White wires. Using a DVOM set to read continuity/resistance, check for continuity between the each terminal (Terminals 6 and 15 of the modulator connector, and the two terminals of the sensor side of the sensor connector) and a good ground.

**Is there continuity to ground on any of the wires?**

Yes – Faulty rear wheel speed sensor or harness

No – Go to step 3

### **Step 3 Failure Reproduction with a new Rear Wheel Speed Sensor**

Install a new rear wheel speed sensor. See the [ABS Components](#) <sup>[5]</sup> topic for more information.

Make sure the ignition switch is OFF, then plug in the ABS modulator black 18-P connector.

Erase the DTCs. See the [ABS Self-Diagnostics](#) <sup>[6]</sup> topic for more information.

Test ride the motorcycle above 30 km/h (19 mph) and check for DTCs again.

**Is DTC 1-3, 1-4, 2-3, or 4-3 indicated?**

Yes – faulty ABS modulator

No – original speed sensor was faulty

### **DTCs 3-1, 3-2, 3-3, 3-4 (Solenoid Valve)**

#### **Step 1 Failure Reproduction:**

Erase the DTCs. See the [ABS Self-Diagnostics](#) <sup>[6]</sup> topic for more information.

Test ride the motorcycle above 30 km/h (19 mph) and check for DTCs again.

**Is DTC 3-1, 3-2, 3-3 or 3-4 indicated?**

Yes – faulty ABS modulator

No – Solenoid valve is currently normal (intermittent failure)

### **DTCs 5-1, 5-2, or 5-3 (Pump Motor Lock/Stuck Off/Stuck ON)**

#### **Step 1 Fuse Inspection**

Turn the ignition switch OFF.

Remove the seat for access to the fuse box. See the [Seat](#) <sup>[3]</sup> topic for more information.

Remove the cover from fuse box with the MR+B 30A fuse. See the [Fuses](#) <sup>[4]</sup> topic for more information.

Check to see if the MR+B (30A) fuse is blown.

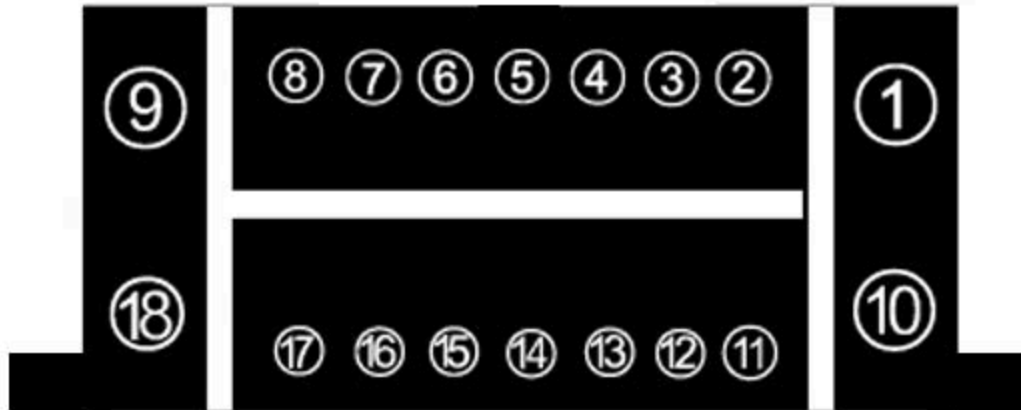
**Is the MR+B (30A) fuse blown?**

Yes – go to step 2

No – go to step 3

### **Step 2 ABS Modulator Power Line Short Circuit Inspection**

Make sure the ignition switch is still OFF and unplug the ABS modulator black 18-P connector.



### WIRE HARNESS TERMINALS

With the MR+B (30A) fuse still removed from Step 1, use a DVOM set to check resistance/continuity and check for continuity between the wire harness side of the ABS modulator black 18-P connector Terminal 9 (Red/Black) and a good ground.

#### **Is there continuity between Terminal 9 and ground?**

Yes – short circuit in Red/Black wire between the fuse box and the ABS modulator black 18-P connector

No – intermittent failure. Replace the MR+B (30A) fuse with a new one and recheck

#### **Step 3 Failure Reproduction**

Turn the ignition switch OFF, then plug in the ABS modulator black 18-P connector.

Erase the DTCs. See the [ABS Self-Diagnostics](#) <sup>[6]</sup> topic for more information.

Test ride the motorcycle above 30 km/h (19 mph) and check for DTCs again.

#### **Is DTC 5-1, 5-2, or 5-3 indicated?**

Yes – faulty ABS modulator

No – Pump motor is currently normal (intermittent failure)

### **DTC 5-4 (Valve Relay)**

#### **Step 1 Fuse Inspection**

Turn the ignition switch OFF.

Remove the seat for access to the fuse box. See the [Seat](#) <sup>[3]</sup> topic for more information.

Remove the cover from fuse box with the FSR+B 30A fuse. See the [Fuses](#) <sup>[4]</sup> topic for more information.

Check to see if the FSR+B (30A) fuse is blown.

#### **Is the FSR+B (30A) fuse blown?**

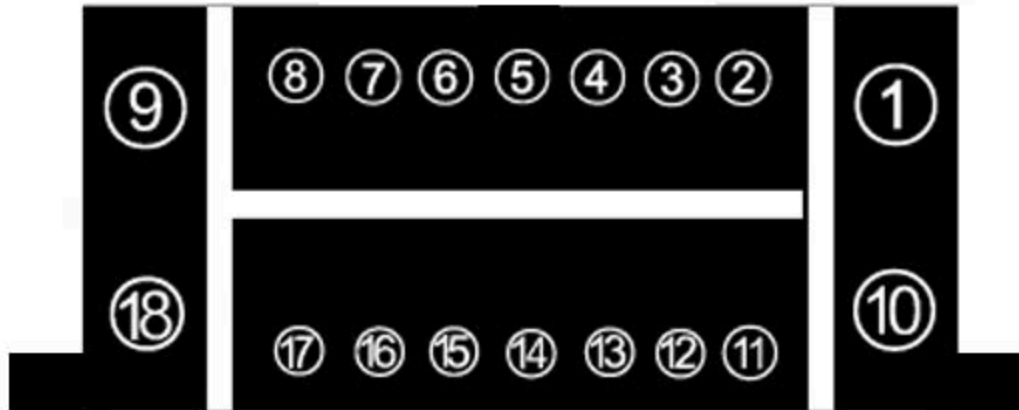
Yes – go to step 2

No – go to step 3



## Step 2 ABS Modulator Power Line Short Circuit Inspection

Make sure the ignition switch is still OFF and unplug the ABS modulator black 18-P connector.



WIRE HARNESS TERMINALS

With the ABS FSR+B (30A) fuse still removed from Step 1, use a DVOM set to check resistance/continuity and check for continuity between the wire harness side of the ABS modulator black 18-P connector Terminal 18 (Red/White) and a good ground.

### Is there continuity between Terminal 18 and ground?

Yes – short circuit in Red/White wire between the fuse box and the ABS modulator black 18-P connector

No – intermittent failure. Replace the FSR+B (30A) fuse with a new one and recheck

## Step 3 Failure Reproduction

Turn the ignition switch OFF, then plug in the ABS modulator black 18-P connector.

Erase the DTCs. See the [ABS Self-Diagnostics](#) <sup>[6]</sup> topic for more information.

Test ride the motorcycle above 30 km/h (19 mph) and check for DTCs again.

### Is DTC 5-4 indicated?

Yes – faulty ABS modulator

No – valve relay is currently normal (intermittent failure)

## DTCs 6-1 or 6-2 (Power Circuit)

### Step 1 ABS Modulator Power Line Inspection

Make sure the ignition switch is still OFF and unplug the ABS modulator black 18-P connector.



### WIRE HARNESS TERMINALS

Use a DVOM set to check voltage between wire harness side of the ABS modulator black 18-P connector Terminal 7 (Black) and a good ground.

**Is there battery voltage between Terminal 7 and ground?**

Yes – go to step 2

No – faulty Black wire

### Step 2 ABS Modulator Power Line Short Circuit Inspection

With the ignition still OFF and the modulator wiring still disconnected, use a DVOM set to check resistance/continuity and check for continuity between the wire harness side of the ABS modulator black 18-P connector Terminal 7 (Black) and a good ground.

**Is there continuity between Terminal 7 and ground?**

Yes – short circuit in Black wire between the fuse box and the ABS modulator black 18-P connector

No – go to step 3

### Step 3 Failure Reproduction

Erase the DTCs. See the [ABS Self-Diagnostics](#) <sup>[6]</sup> topic for more information.

Test ride the motorcycle above 30 km/h (19 mph) and check for DTCs again.

**Is DTC 6-1 or 6-2 indicated?**

Yes – faulty ABS modulator

No – Power circuit is currently normal (intermittent failure)

### DTC 7-1 (Tire Size)

Note: Check the following and correct if faulty:

Incorrect tire pressure

Incorrect tire size (tire/size not recommended)

Incorrect sprocket gear ratio

Deformation of wheel or tire

### Step 1 Failure Reproduction:



If the preliminary check items listed earlier are normal, erase the DTCs. See the [ABS Self-Diagnostics](#) [6] topic for more information.

Test ride the motorcycle above 30 km/h (19 mph) and check for DTCs again.

**Is DTC 7-1 indicated?**

Yes – faulty ABS modulator

No – Tire size/Sprocket ratio are currently normal (intermittent failure)

**DTC 8-1 (ABS Control Unit)**

**Step 1 Failure Reproduction:**

Erase the DTCs. See the [ABS Self-Diagnostics](#) [6] topic for more information.

Test ride the motorcycle above 30 km/h (19 mph) and check for DTCs again.

**Is DTC 8-1 indicated?**

Yes – faulty ABS modulator

No – ABS control unit is currently normal (intermittent failure)

**DTC 8-2 (Rear ABS Off Indicator)**



Note: If the ABS indicator light blinks under unusual riding conditions this is usually just a temporary failure. Erase the DTC, then test ride the motorcycle above 30 km/h (19 mph) and check that the ABS indicator operates normally.

**Step 1 Rear ABS Off Indicator Inspection**

Turn the ignition switch OFF.

Disconnect the ABS modulator black 18-P connector.

Turn the ignition switch ON and check the Rear ABS Off indicator again.

**Is the rear ABS Off indicator illuminated?**

Yes – faulty ABS modulator

No – got to step 2

## **Step 2 Rear ABS Off Indicator Line Short Circuit Inspection**

Turn the ignition switch OFF.



Unplug the combination meter gray 28-P connector (LA shown). See the [Meter](#) <sup>[2]</sup> topic for more information.



**WIRE HARNESS TERMINALS**



Using a DVOM set to check resistance/continuity and a test probe, check for continuity between the wire harness side of the ABS modulator black 18-P connector Terminal 3 (Black/White) and a good ground.

**Special Tool – Test probe:** 07ZAJ-RDJA110

**Is there continuity between Terminal 3 and ground?**

Yes – short circuit in the Black/White wire

No – faulty combination meter (replace with known good and recheck)

URLs in this post:

[1] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

[2] Meter: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/multi-function-display/>

[3] Seat: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/seat/>

[4] Fuses: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/fuses/>

[5] ABS Components: <https://www.cyclepedia.com/manuals/online/cpp-323/front-brake/abs-components/>

[6] ABS Self-Diagnostics: <https://www.cyclepedia.com/manuals/online/cpp-323/front-brake/abs-self-diagnostics/>

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## - Honda CRF300L Service Manual

### Front Caliper

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

**WARNING:** Brake fluid is very caustic and can cause damage to paint, chrome and plastic. Wipe up any spills immediately.

### Suggested Tools and Supplies

- 8 mm Socket
- 12 mm Socket
- Ratchet
- Torque Wrench
- Vernier Caliper and Bore Gauge
- Shop Towels
- Compressed Air
- Small Pick
- Aerosol Brake Cleaner
- DOT 3 or 4 Brake Fluid
- Silicone Grease
- Nitrile Gloves
- Safety Glasses

## Removal

If removing the caliper for rebuilding or replacement, remove the front brake pads (which can be done without dismounting the caliper). See the [Brake Inspection](#) <sup>[1]</sup> topic for more information.

If removing the caliper completely from the brake system for rebuilding or replacement, drain the brake fluid from the front brake system. See the [Brake Fluid](#) <sup>[2]</sup> topic for more information.



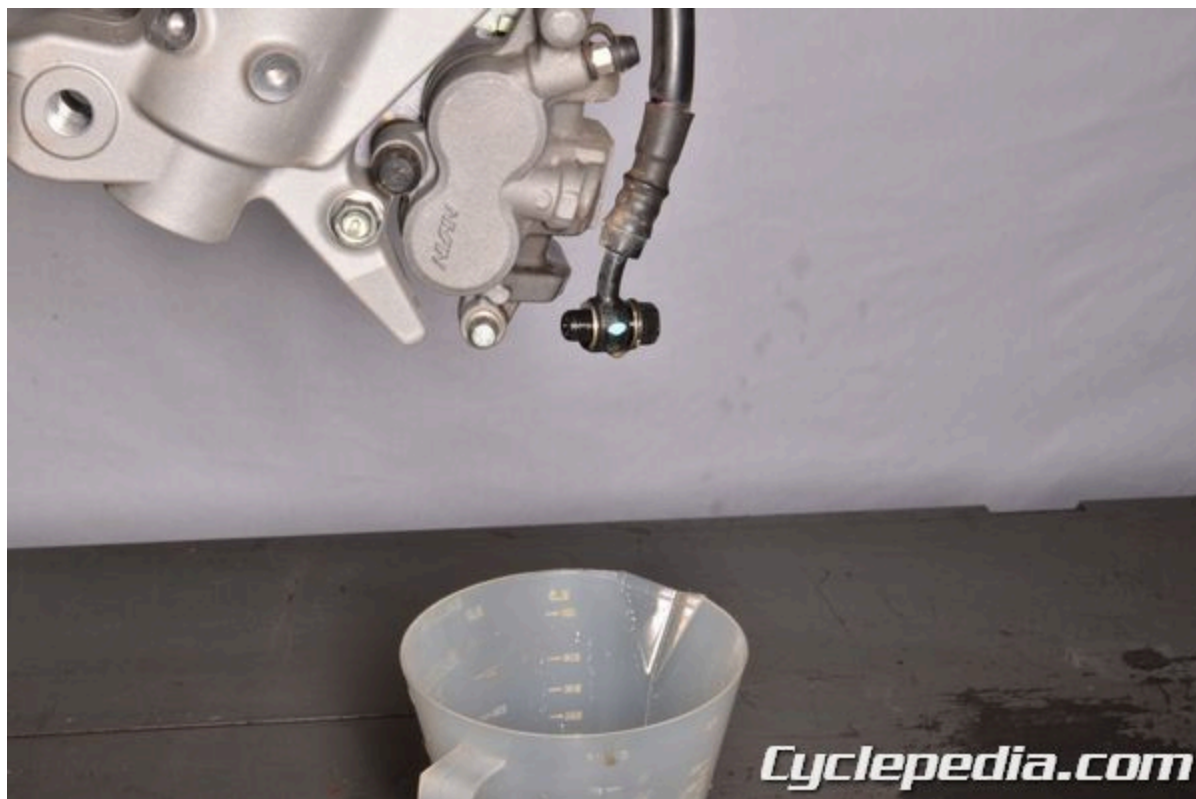
If the entire brake system is being removed intact, or if the caliper is just being removed to be repositioned aside for access, remove the brake hose guide bolts using an 8 mm socket (standard



models shown).

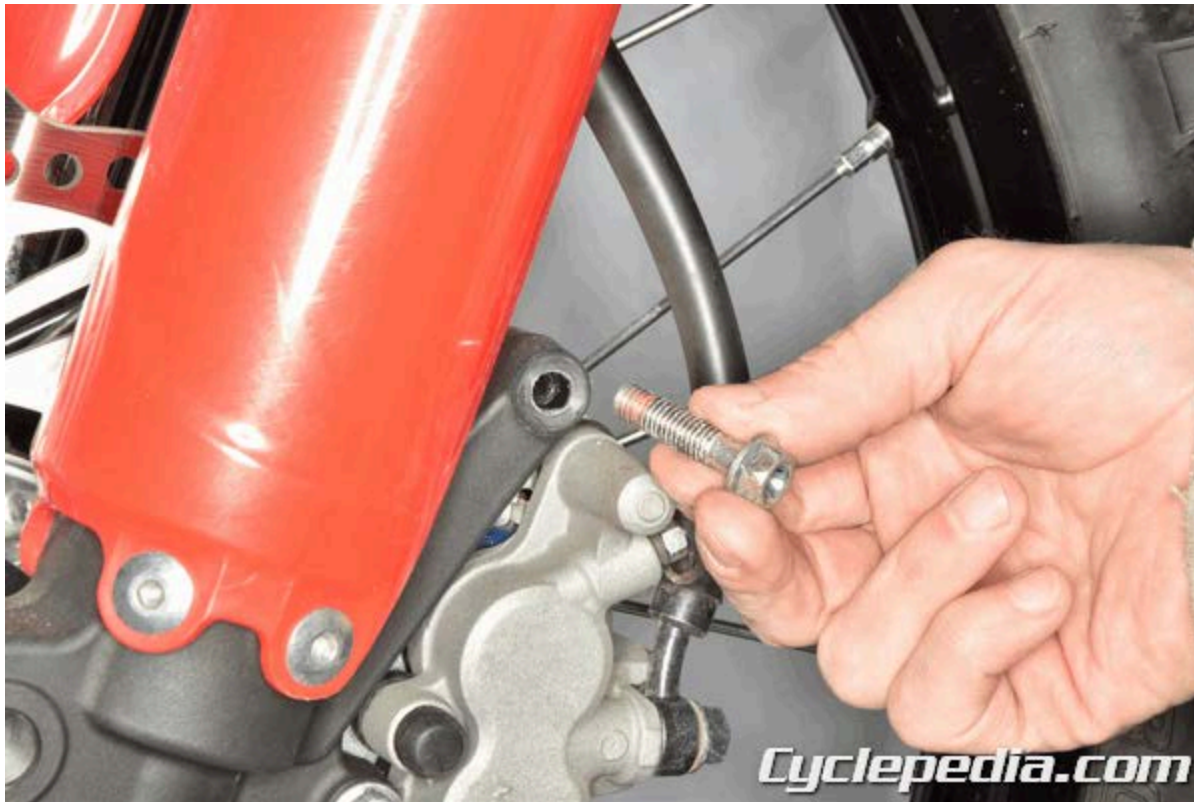


If the system was drained and the caliper is being removed completely, loosen the brake caliper banjo bolt with a 12 mm socket.



Allow any remaining brake fluid to drain into a suitable container. Remove the bolt, then remove and discard the old sealing washers.

Note: It is a good idea to cover the bolt and hose with a plastic bag to prevent the danger of system contamination while the line is disconnected.



Remove the two caliper bracket mounting bolts with a 12 mm socket.



Remove the caliper from the fork leg.

## **Disassembly**





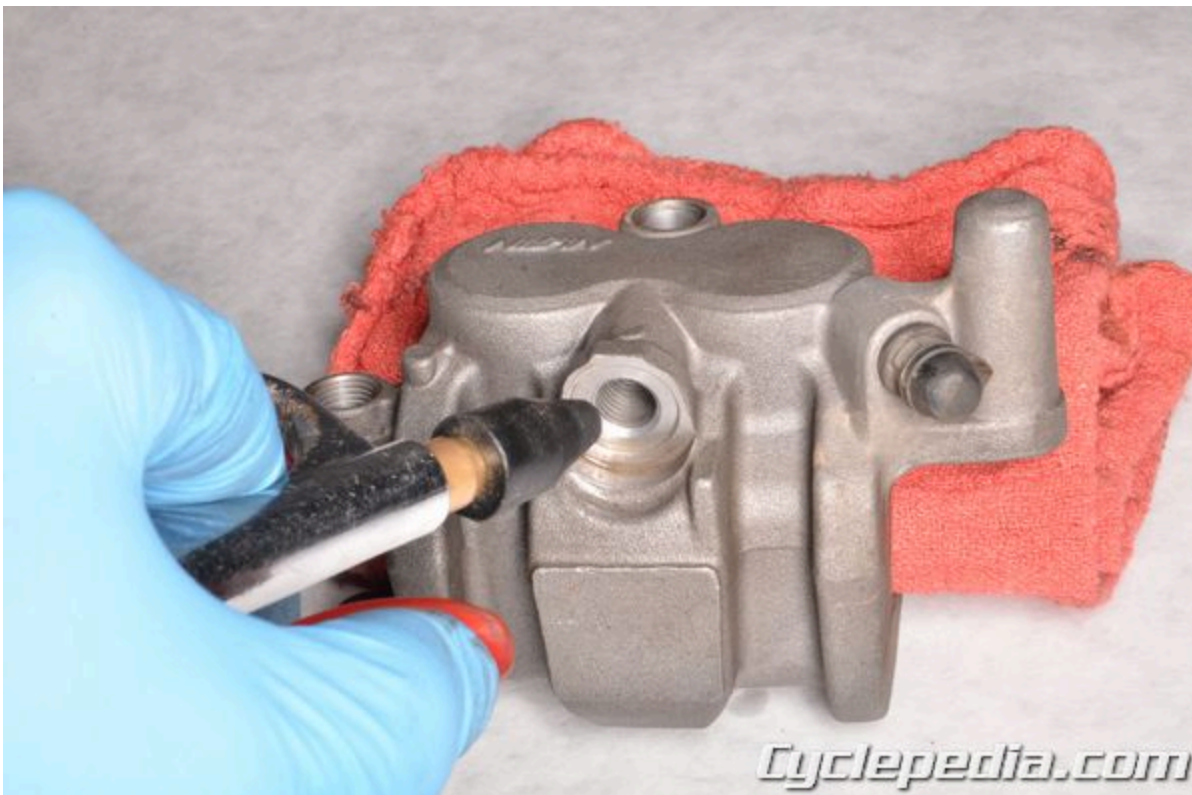
Pull the caliper mounting bracket off the mounting pins.



Inspect the pin boots for damage and deterioration and replace them as needed.



Inspect the pad retainer spring inside the caliper body. Replace as needed.



Clean the caliper carefully before proceeding. Place a shop rag between the caliper pistons and the inside surface of the brake caliper. Blow compressed air into the banjo bolt opening to remove the caliper pistons. The pistons are a tight fit in the brake caliper and will pop out with a lot of force.

**Caution: Do not place your fingers over the caliper pistons while removing them as serious injury could result.**



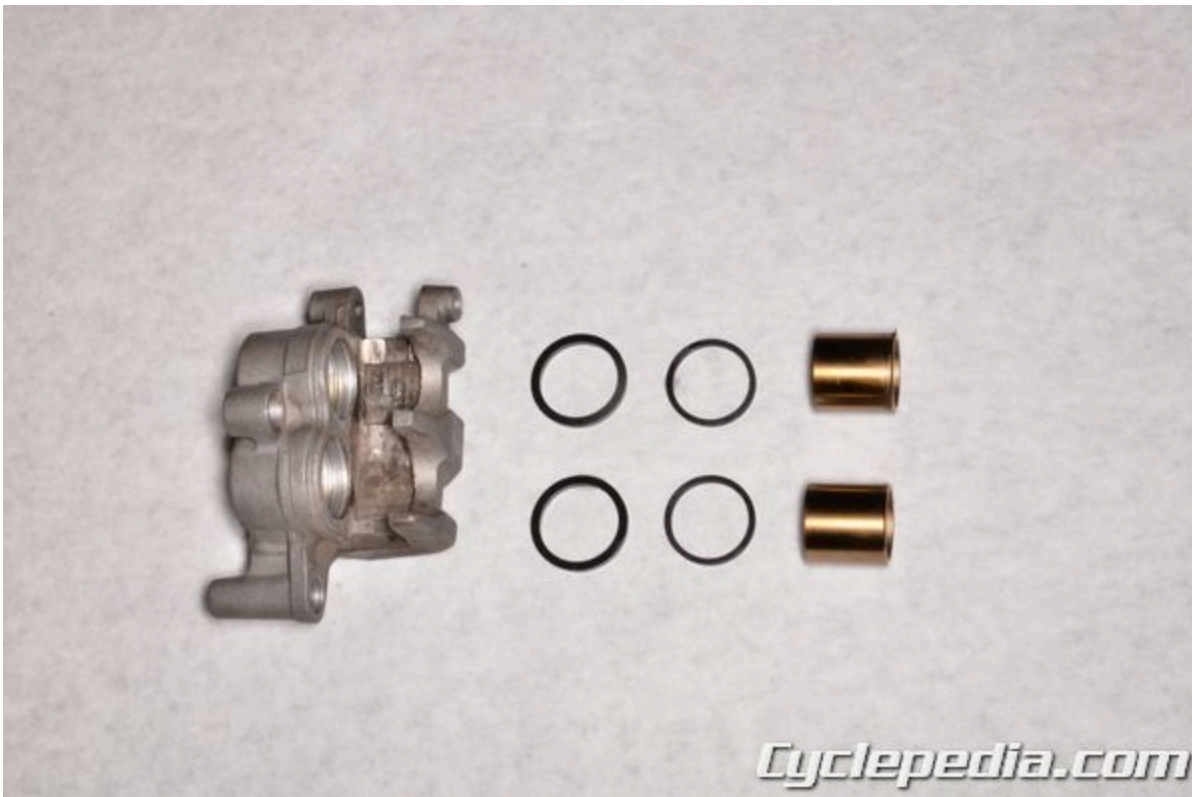


Remove the pistons.



Remove the seals from the piston bore and discard. Do not re-use the caliper seals. Install new seals on reassembly.

## Inspection



Check the caliper bores and pistons for any wear, scratches or corrosion. Replace the caliper assembly if needed. Measure the inside diameter of the caliper bores and the outside diameter of the pistons to that they are within specification.

**Caliper cylinder bore inner diameter:** 27.000 – 27.050 mm (1.0630 – 1.0650 in)

**Caliper piston outer diameter:** 26.918 – 26.968 mm (1.0598 – 1.0617 in)

The caliper pistons can be cleaned with fresh brake fluid and fine steel wool. Do not scratch them, and if corrosion is severe plan on replacing them.





Inspect the caliper mounting bracket for wear or damage. Make sure the pins are smooth and free of corrosion or other damage. The lower pin or the torque nut on the back side of the upper pin/bracket can be replaced if damaged. The lower of the pin is secured by a wave washer. The threads on the upper torque nut should be coated lightly with a threadlock compound. Both should be tightened to specification.

**Front brake caliper pin bolt:** 17 N-m (1.7 kgf-m, 13 ft-lb)

**Front brake caliper torque nut (apply threadlock):** 22 N-m (2.2 kgf-m, 16 ft-lb)

## Assembly



Install new seals in the caliper bores. Lubricate the inner (oil) seals and caliper bore with fresh brake fluid. The wider oil seal goes in first. Lubricate the outer (dust) seals with a light coat of silicone brake grease.

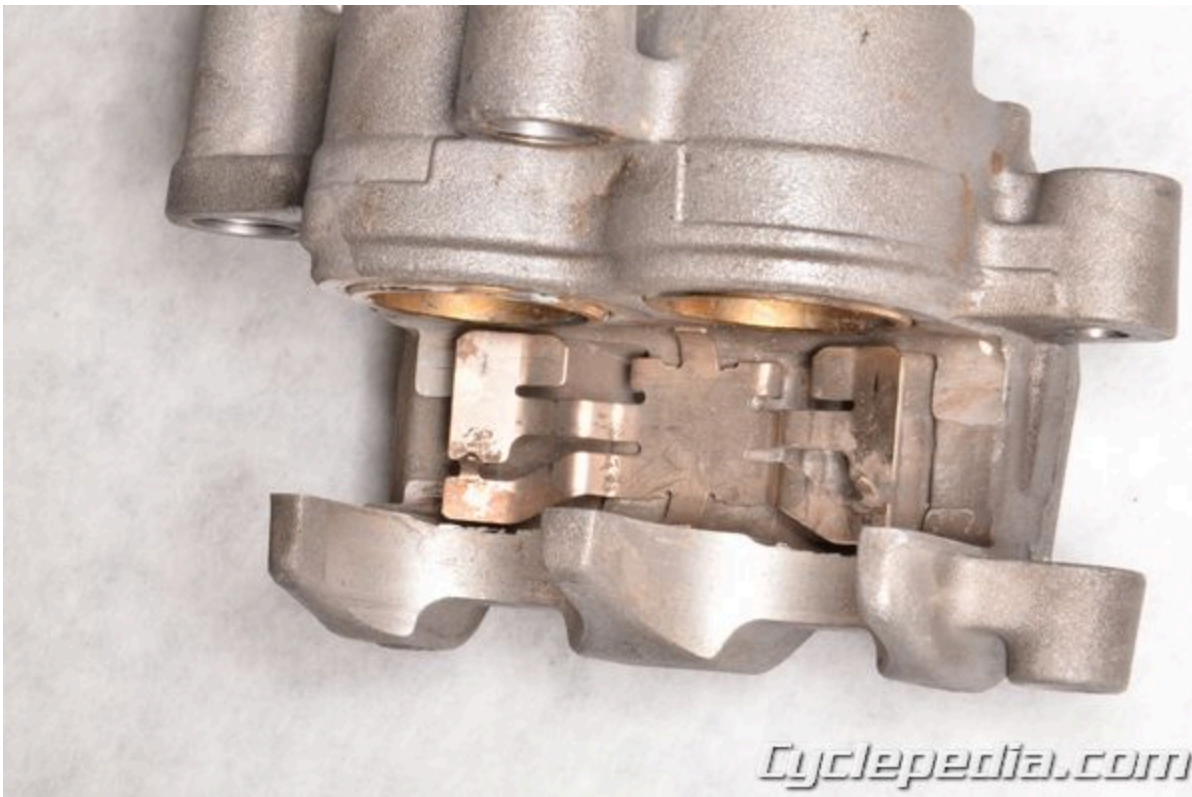


Lubricate the pistons with fresh brake fluid, and install the pistons. Push the caliper pistons completely into the calipers closed end first.





If removed, install the rubber boots.



Install the pad spring in the caliper body.



Lubricate the caliper sliding pins with silicone brake grease and install the mounting bracket to the caliper body.

## **Installation**





Mount the caliper to the front fork.



Install two new ALOC bolts and tighten to specification using a 12 mm socket.

**Front brake caliper mounting bolt (ALOC bolt, replace):** 30 N-m (3.1 kgf-m, 22 ft-lb)





Make sure the lower part of the brake hose is routed correctly, and install the banjo bolt with two new copper sealing washers. Tighten the bolt to specification.

**Brake hose oil bolt:** 34 N-m (3.5 kgf-m, 25 ft-lb)



Install the brake hose guide bolt and tighten to specification using an 8 mm socket.

**Front brake hose guide bolt:** 10 N-m (1.0 kgf-m, 7.0 ft-lb)



Install the front brake pads. See the Brake Inspection <sup>[1]</sup>topic for more information.

Fill the master cylinder reservoir with brake fluid and bleed the brakes. See the Brake Fluid <sup>[2]</sup> topic for more information.

URLs in this post:

[1] Brake Inspection: **<https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/brake-inspection/>**

[2] Brake Fluid: **<https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/brake-fluid/>**

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## - Honda CRF300L Service Manual

### Front Master Cylinder

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

**WARNING:** Brake fluid is very caustic and can cause damage to paint, chrome and plastic. Wipe up any spills immediately.

#### Suggested Tools and Supplies

8 mm Socket  
10 mm Socket and Wrench  
12 mm Socket  
#2 Phillips Head Screwdriver  
Ratchet  
Torque Wrench  
Snap Ring Pliers  
Vernier Caliper and Bore Gauge  
Shop Towels  
Aerosol Brake Cleaner  
DOT 3 or 4 Brake Fluid  
Silicone Grease  
Nitrile Gloves  
Safety Glasses

## Removal

Drain the brake fluid. See the [Brake Fluid](#) <sup>[1]</sup> Topic for more information.

If equipped, remove the handguard and brake lever. See the [Handguards](#) <sup>[2]</sup> topic for more information.

Remove the right rear view mirror. See the [Mirrors](#) <sup>[3]</sup> topic for more information.



Disconnect the brake light switch wires.





Loosen the brake hose banjo bolt with a 12 mm socket. Remove the bolt and discard the sealing washers.

Note: It is a good idea to cover the bolt and hose with a plastic bag to prevent the danger of system contamination while the line is disconnected.



Remove the front brake master cylinder bolts using an 8 mm socket.



Remove the clamp and master cylinder from the handlebar.

## Disassembly



Hold the brake lever mounting nut with a 10 mm wrench and remove the brake lever pivot nut with a 10 mm socket.

Note: On models equipped with an OEM handguard there is a collar in addition to the nut. Be sure to keep track of the collar if the lever is being removed.





Remove the brake lever mounting bolt.



Remove the brake lever (and the handguard on models so equipped, and if not removed earlier, see the [Handguards](#) <sup>[2]</sup> topic for more information as needed).



Loosen the brake light switch screw with a #2 Phillips screwdriver.

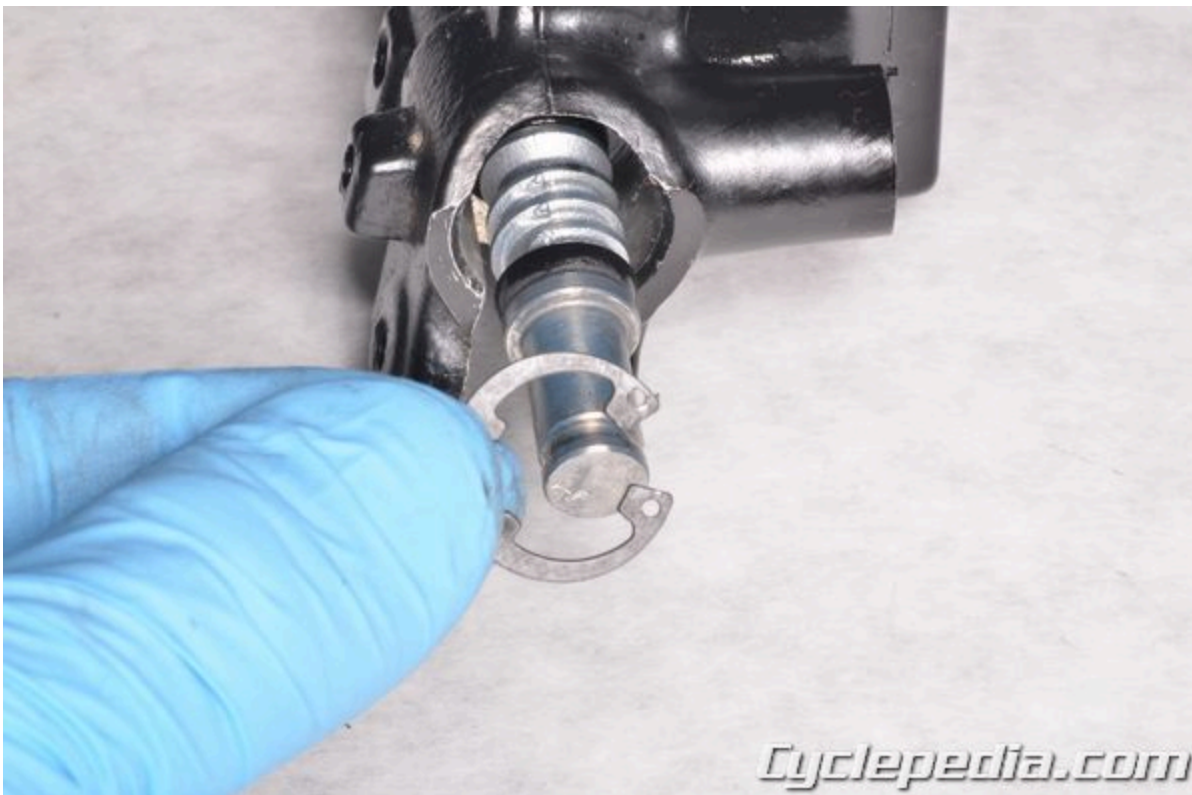


Remove the switch.





Remove the rubber boot.



Use snap ring pliers to remove the retaining clip.



Remove the front brake master cylinder piston assembly.



Carefully remove the separator from the master cylinder bore with a small pick.





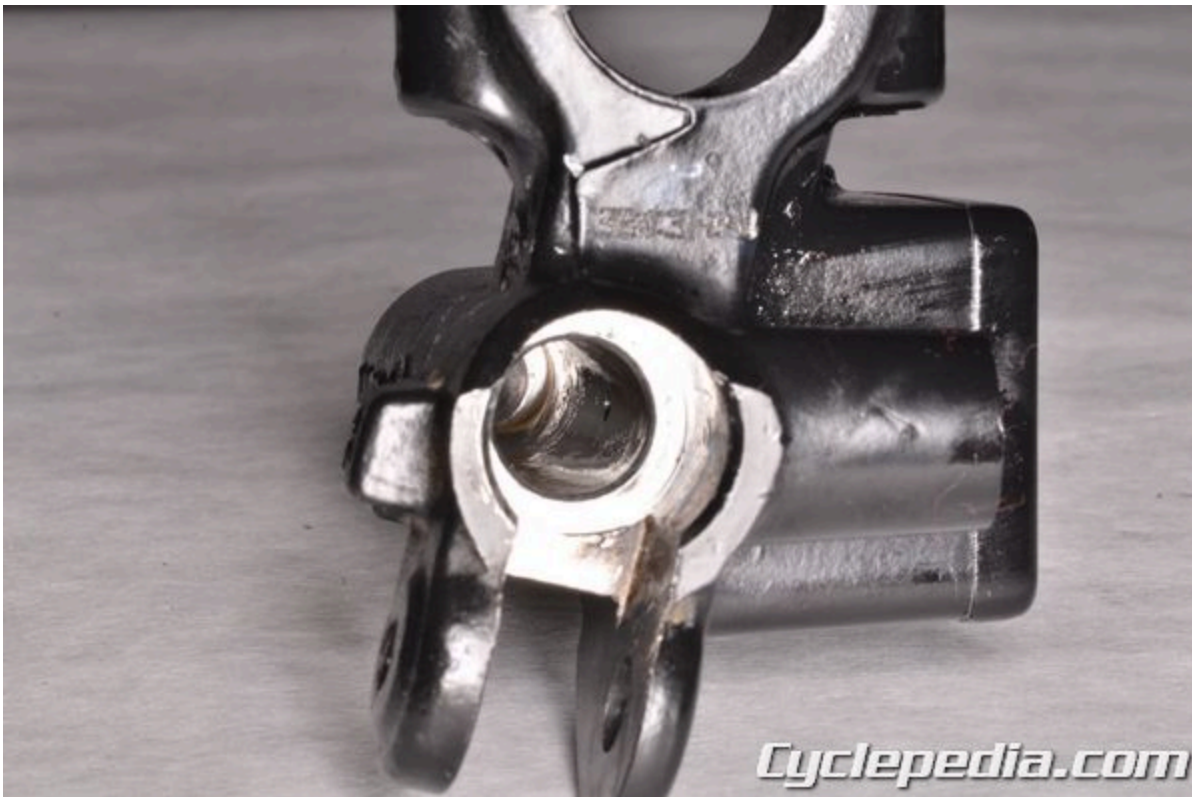
Remove the stopper ring from the separator.

## Inspection

Clean the master cylinder components with fresh brake fluid, isopropyl alcohol or ethyl alcohol and compressed air.

**NOTE: Always wear safety glasses when using compressed air and never point it directly at yourself or anyone else.**

If any parts appear worn or the retaining clip is fatigued replace with new items at reassembly.



Inspect the master cylinder bore for damage and signs of clogging. Measure the bore inner diameter and compare to specification.

**Front master cylinder bore inner diameter:** 12.700 – 12.743 mm (0.5000 – 0.5017 in) standard, 12.755 mm (0.5022 in) limit\*

\* Note: The service limit was not included in OEM literature and is taken from an older Honda model with the exact same master cylinder.





Check the piston and spring for wear and damage. Check the rubber piston cups for deterioration. Measure the piston outer diameter and compare to specification.

**Front master cylinder piston outer diameter:** 12.657 – 12.684 mm (0.4983 – 0.4994 in) standard, 12.645 mm (0.4978 in) limit\*

\* Note: The service limit was not included in OEM literature and is taken from an older Honda model with the exact same master cylinder.

## Assembly



If removed, install the stopper ring on the separator and align the ends as shown.



Install the separator and stopper ring into the bore in the base of the reservoir.



Always replace the piston, spring, piston cups and snap ring as a set. Check that the piston cups are seated properly and not twisted or turned inside out.





Coat the piston and cylinder bore with fresh brake fluid. Install the piston assembly into the master cylinder.



Install the retaining clip, make sure its fully seated in the groove.



Install the rubber boot.



Apply a light coat of grease to the sliding surface of the brake lever and install it to the perch (along with the OEM handguard if equipped, see the [Handguards](#) <sup>[2]</sup> topic for more information as needed).

Note: If preferred the handguard and lever can be installed after the master cylinder is installed to the handlebar.





Apply **0.1 gram (0.004 oz)** of grease to the sliding surface of the brake lever pivot bolt, then install it through the lever and tighten it to specification in the mount using a 10 mm socket.

**Brake lever pivot bolt:** 1.0 N-m (0.1 kgf-m, 0.7 ft-lb)



Install the brake lever nut (along with the collar on models with the OEM handguards) and tighten to specification using a 10 mm socket and 10 mm backup wrench on the bolt.

**Brake lever pivot nut:** 5.9 N-m (0.6 kgf-m, 4.4 ft-lb)



Install the brake light switch, align the post with the alignment hole and tighten the screw to specification using a #2 Phillips driver.

**Front brake light switch screw:** 1.2 N-m (0.1 kgf-m, 0.9 ft-lb)

## Installation



Install the front brake master cylinder.





Install the clamp with the “up” mark facing upward.



Install the bolts and check that the gap in the clamp aligns with the punch mark on the handlebar. Tighten the clamp bolts to specification using an 8 mm socket, starting with the upper bolt and then moving to the lower bolt.

**Front master cylinder holder bolt:** 9.8 N-m (1.0 kgf-m, 7.2 ft-lb)



Connect the brake line and install the banjo bolt with two new sealing washers. Make sure the fitting on the banjo is against the stopper, then tighten the bolt to specification with a 12 mm socket.

**Brake hose oil bolt:** 34 N-m (3.5 kgf-m, 25 ft-lb)



Connect the wiring to the brake light switch spade terminals.

Fill the master cylinder with the proper brake fluid from a tightly sealed container and bleed the brakes. See the [Brake Fluid](#) <sup>[1]</sup> topic for more information.



Install the right rear view mirror. See the Mirrors <sup>[3]</sup> topic for more information.  
URLs in this post:

[1] Brake Fluid: **<https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/brake-fluid/>**

[2] Handguards: **<https://www.cyclepedia.com/manuals/online/cpp-323/external-components/handguard/>**

[3] Mirrors: **<https://www.cyclepedia.com/manuals/online/cpp-323/external-components/mirrors/>**

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## - Honda CRF300L Service Manual

Front Rotor

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

### Suggested Tools and Supplies

Micrometer

Dial Gauge and Magnetic Base

10 mm Socket

Ratchet

Torque Wrench

Nitrile Gloves

Safety Glasses

## Inspection

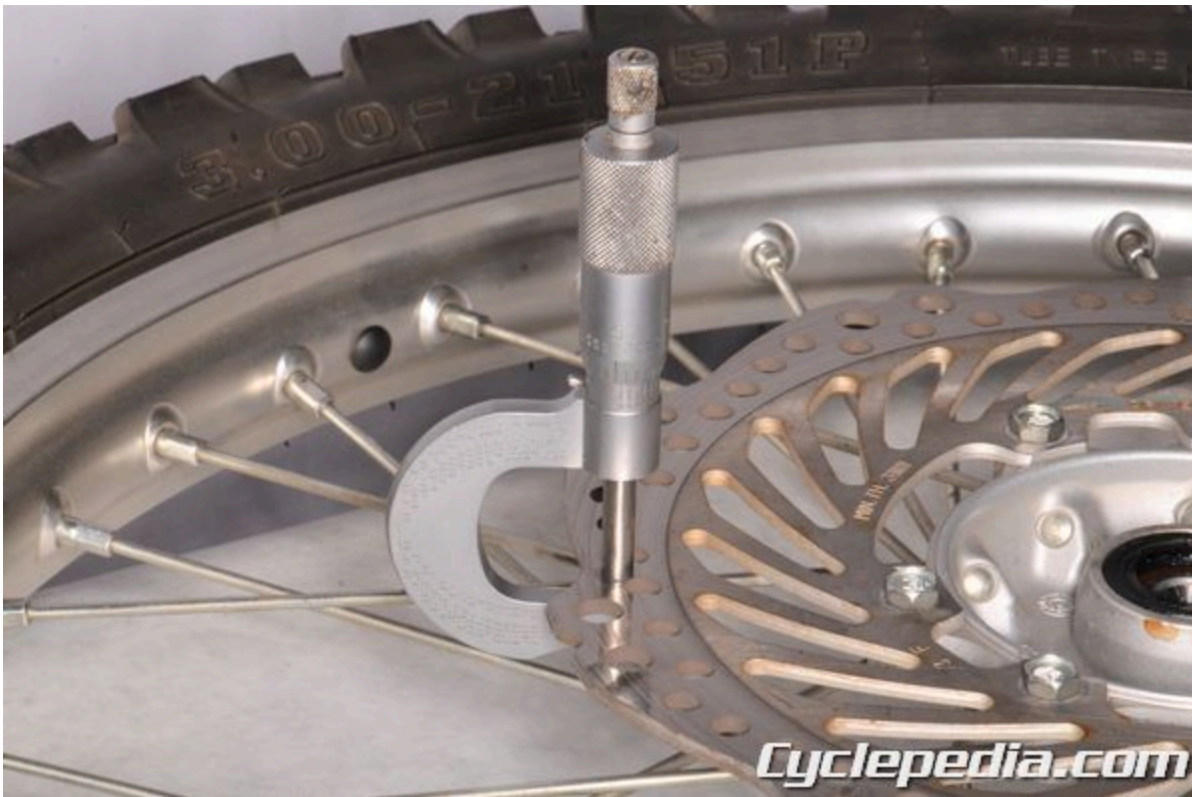
Place the motorcycle on a stand so the front wheel is off the ground.



Using a dial gauge and magnetic stand, measure the run-out of the rear rotor by rotating the disc slowly. Compare your reading with the specification.

**Brake disc warpage Limit:** 0.30 mm (0.01 in) limit





Using a micrometer, measure the thickness of the rotor. If the measurements are not within specification replace the brake disc.

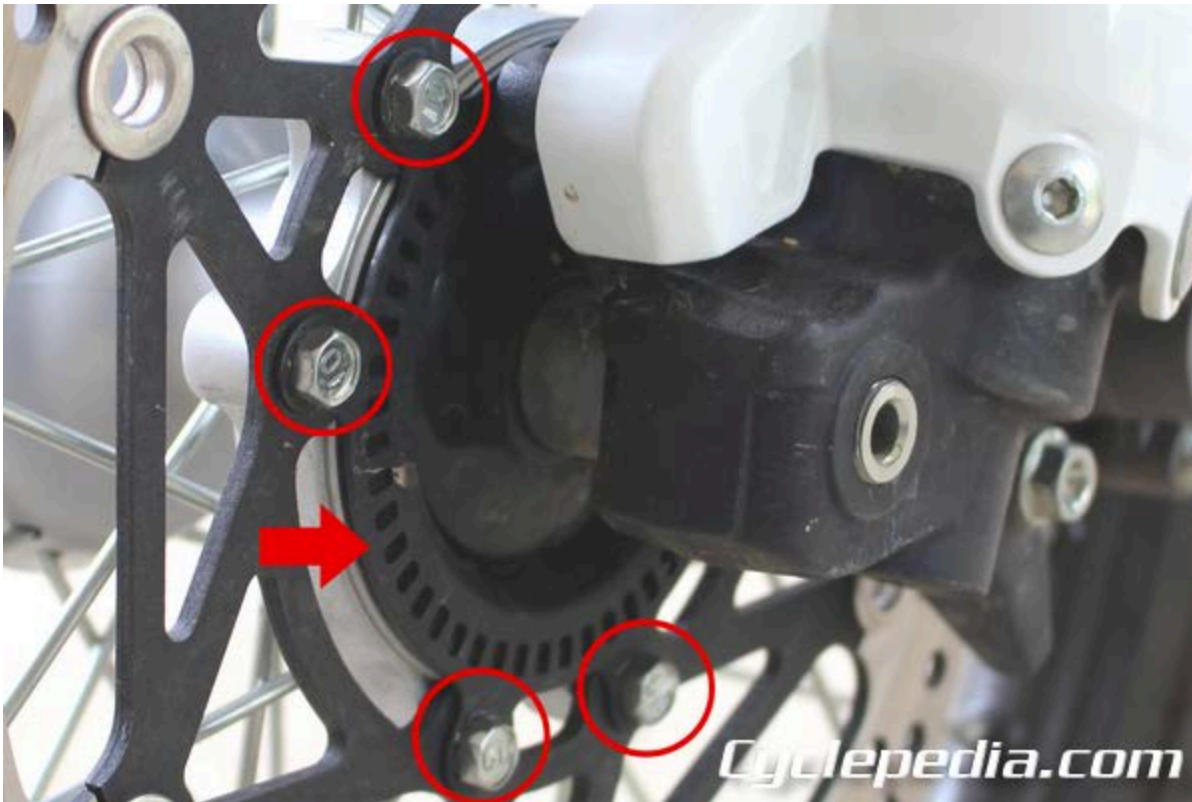
**Front brake disc thickness:** 3.3 – 3.7 mm (0.13 – 0.15 in) standard, 3.0 mm (0.12 in) limit

## Removal

Remove the front wheel for access. See the [Front Wheel](#) <sup>[1]</sup> topic for more information.



Loosen the six brake rotor bolts evenly in multiple steps with a 10 mm socket.



Note: On LA/LRA models (with ABS) the brake rotor bolts (circles, but some not visible in this shot) also secure the ABS pulser/tone ring (arrow) which is mounted on top of the rotor. On these models be sure to carefully free the pulser ring before removing the rotor so it is not dropped or otherwise damaged.



Remove and discard the six brake rotor bolts, then remove the rotor from the wheel hub. Replace the bolts with new items on installation.



## Installation

Clean the rotor mounting surface carefully. Fit the rotor into place. On ABS models fit the pulser (tone) ring over the rotor and align the bolt holes.



Install new brake rotor bolts. Tighten the bolts to specification a little at time using a 10 mm socket and multiple passes of a crisscross pattern.

**Front brake disc bolt (ALOC bolt, replace):** 20 N-m (2.0 kgf-m, 15 ft-lb)

Install the front wheel. See the [Front Wheel](#) <sup>[1]</sup> topic for more information.  
URLs in this post:

[1] Front Wheel: <https://www.cyclepedia.com/manuals/online/cpp-323/wheels/front-wheel/>  
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## - Honda CRF300L Service Manual

### Rear Brake Pedal

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### Suggested Tools and Supplies

Needle Nose Pliers or Wire Cutters (for peg cotter pins)

Spring Puller

Small Seal Pick

Nitrile Gloves

Safety Glasses

## Removal

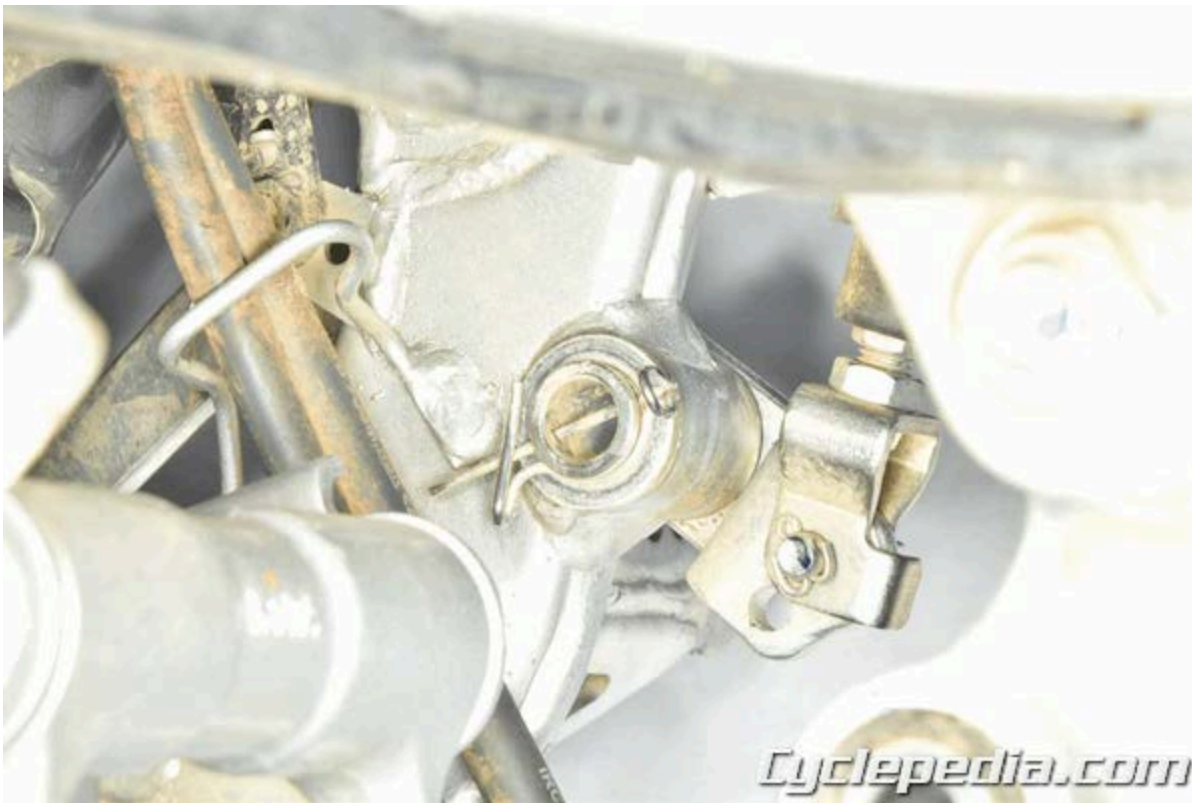
If desired/necessary for more access (to the brake light switch spring) remove the Frame (Heel) Guard. See the [Bodywork](#) <sup>[1]</sup> topic for more information.



Remove the brake pedal return spring using a spring puller or pair of pliers.

**WARNING:** Be careful not to over-stretch and damage the spring.





Remove the snap pin from the back side of the pedal pivot, then straighten and remove the cotter pin from the back of the pedal-to-master cylinder joint clevis (photo shown from under the frame on the other side). The snap pin can be reused if it is not damaged, but the cotter pin should be discarded and replaced with a new one come installation.



With the snap pin removed, pull the washer off the pedal shaft.



Free the brake light switch spring from the switch or pedal as desired.



Remove clevis (from which the cotter pin was removed earlier) to free the pedal from the master cylinder push rod joint.





Carefully pull the brake pedal from the frame.

Note: Thoroughly clean the pedal pivot shaft and the surface in the frame to remove old grease and any dirt or debris.



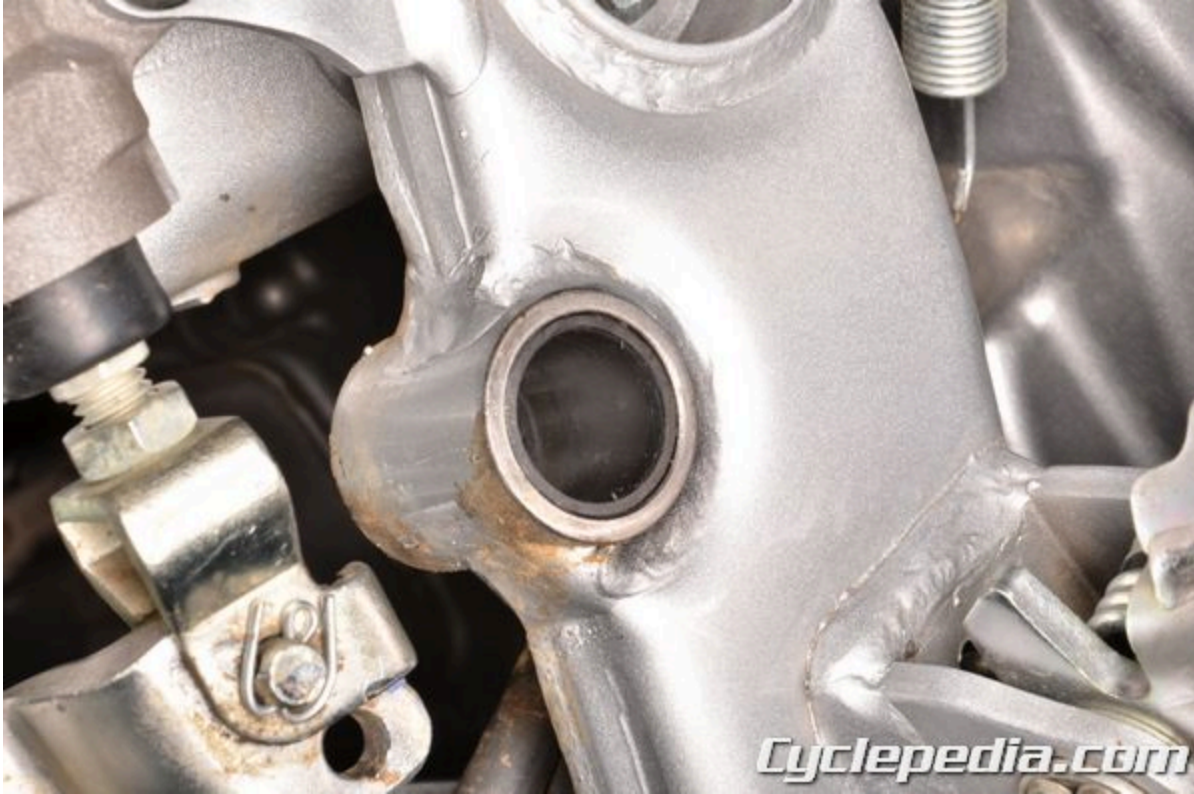
Remove and discard the pedal shaft dust seals found in either side of the bore using a small seal pick. Replace with new ones come installation.

Remove the brake light switch return spring from the tab on the back of the brake pedal.



## Installation

Apply a light coating of grease to the sliding surface of the brake lever pivot and the new dust seals.



Install the dust seals to both ends of the bore. Make sure the seals are properly seated.



Install the brake pedal.





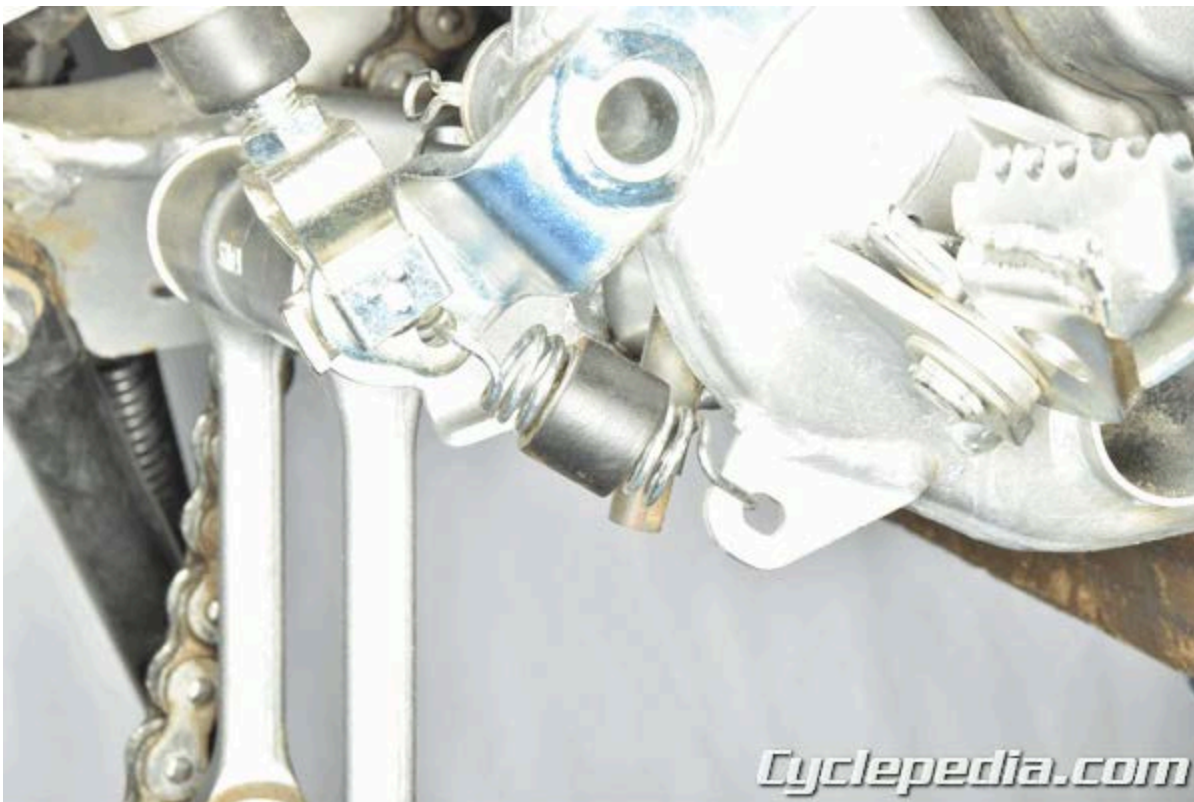
Position the washer over the back of the pedal and install the stopper pin.



Install the joint pin and secure using a new cotter pin.



Connect the spring to the brake switch or pedal as applicable.



Install the brake pedal return spring as shown.

Check for proper function of the brake system and brake light.

If removed for access, install the Frame (Heel) Guard. See the [Bodywork](#) <sup>[1]</sup> topic for more information. URLs in this post:



[1] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

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## - Honda CRF300L Service Manual

### Rear Caliper

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

**WARNING:** Brake fluid is very caustic and can cause damage to paint, chrome and plastic. Wipe up any spills immediately.

### Suggested Tools and Supplies

12 mm Socket  
Ratchet  
Torque Wrench  
Needle Nose Pliers  
Vernier Caliper and Bore Gauge  
Shop Towels  
Compressed Air  
Small Pick  
Aerosol Brake Cleaner  
DOT 3 or 4 Brake Fluid  
Silicone Grease  
Nitrile Gloves  
Safety Glasses

## Removal

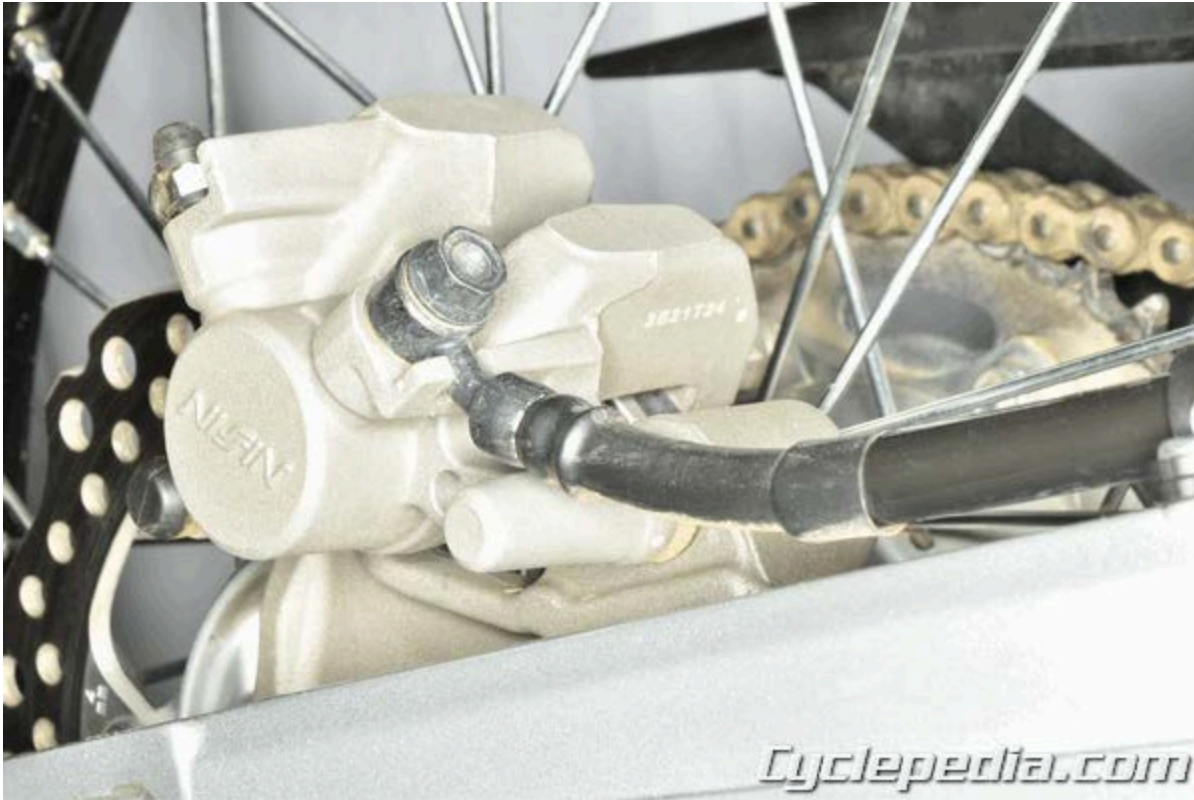
If removing the caliper for rebuilding or replacement, remove the rear brake pads (which can be done without dismounting the caliper). Remove the brake pads. See the [Brake Inspection](#) <sup>[1]</sup> topic for more information.

If removing the caliper completely from the brake system for rebuilding or replacement, drain the brake fluid from the rear brake system. See the [Brake Fluid](#) <sup>[2]</sup> topic for more information.





If the entire brake system is being removed intact, or if the caliper is just being removed to be repositioned aside for access, remove the brake hose guide bolts using a #2 Phillips screwdriver.



If the system was drained and the caliper is being removed completely, loosen the brake caliper banjo bolt with a 12 mm socket. Allow any remaining brake fluid to drain into a suitable container. Remove the bolt, then remove and discard the old sealing washers.

Note: It is a good idea to cover the bolt and hose with a plastic bag to prevent the danger of system contamination while the line is disconnected.



To remove the caliper and bracket from the swing arm so they can be separated, remove the rear wheel. See the [Rear Wheel](#) <sup>[3]</sup> topic for more information.



Slip the rear caliper and bracket assembly off the guide rail on the swing arm.

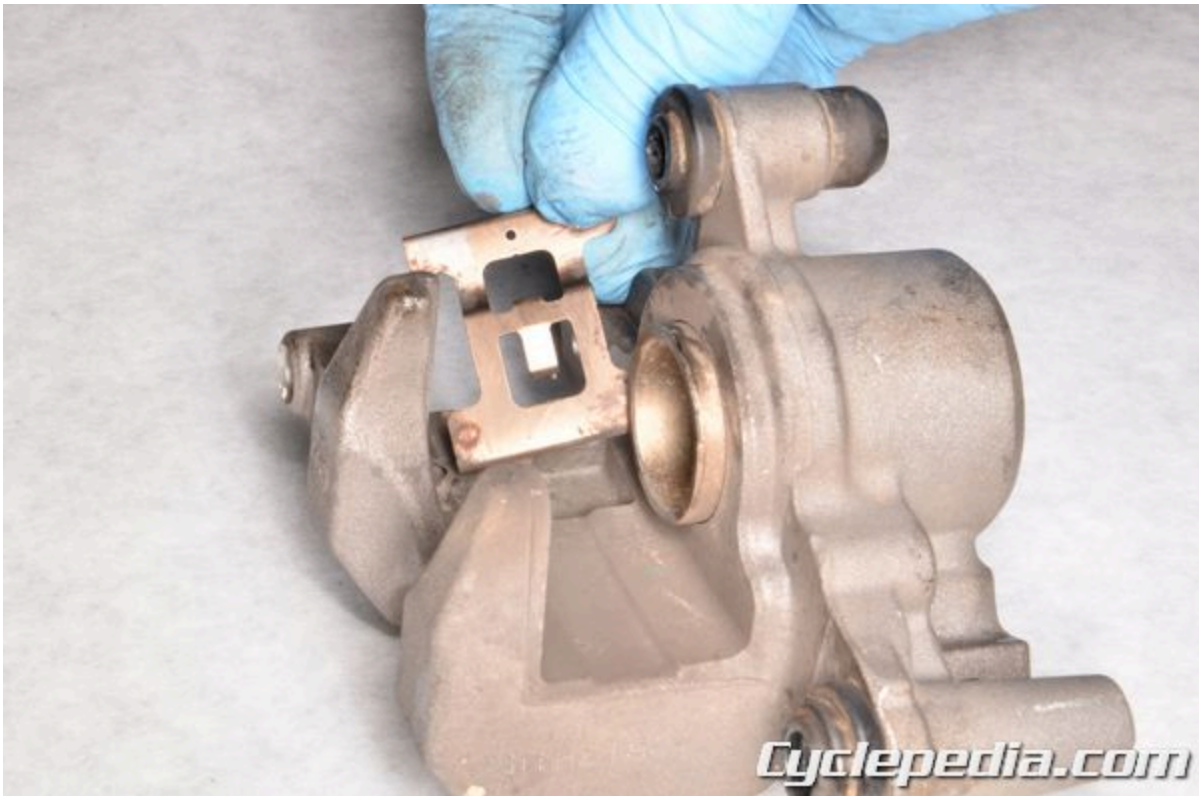
On LA/LRA models to remove the bracket completely, remove the ABS rear wheel speed sensor from the rear of the bracket. See the [ABS Components](#) <sup>[4]</sup> topic for more information.

## Disassembly





Separate the rear brake caliper from the mounting bracket.



Remove the pad spring from the caliper.



Remove the pin boots and replace if worn.



Clean the caliper carefully before proceeding. Place a shop rag between the caliper piston and the inside surface of the brake caliper. Face the caliper down on the work surface and blow compressed air into the banjo bolt opening to remove the caliper piston. The piston is a tight fit in the brake caliper and will pop out with a lot of force.

**Caution: Do not place your fingers over the caliper piston while removing it as serious injury could result.**



Remove the piston.





Remove the seals from the piston bore and discard. Do not re-use the caliper seals. Install new seals on reassembly.

## Inspection



Inspect the caliper mounting bracket for wear or damage. Make sure the pins are smooth and free of corrosion or other damage. The rear pin and nut on the back side of the front pin/bracket can be replaced if damaged. The threads on the nut should be coated lightly with a threadlock compound. Both should be tightened to specification.

**Rear brake caliper pin bolt:** 12 N-m (1.2 kgf-m, 9 ft-lb)

**Rear brake caliper nut (apply threadlock):** 22 N-m (2.2 kgf-m, 16 ft-lb)



Inspect the pad retainer for wear or damage and replace if needed.



Check the caliper bore and piston for any wear, scratches or corrosion. Replace the caliper assembly if needed.





Measure the inside diameter of the caliper bore and the outside diameter of the piston to check that they are within specification.

**Caliper cylinder bore inner diameter:** 27.000 – 27.050 mm (1.0630 – 1.0650 in) standard, 27.060 mm (1.0654 in) limit\*

\* Note: The service limit was not included in OEM literature and is taken from an older Honda model with the exact same master cylinder.

**Caliper piston outer diameter:** 26.918 – 26.968 mm (1.0598 – 1.0617 in)

## Assembly



Install new seals in the caliper bore. Lubricate the inner (oil) seal and caliper bore with fresh brake fluid. The wider oil seal goes in first. Lubricate the outer (dust) seal with a light coat of silicone brake grease.

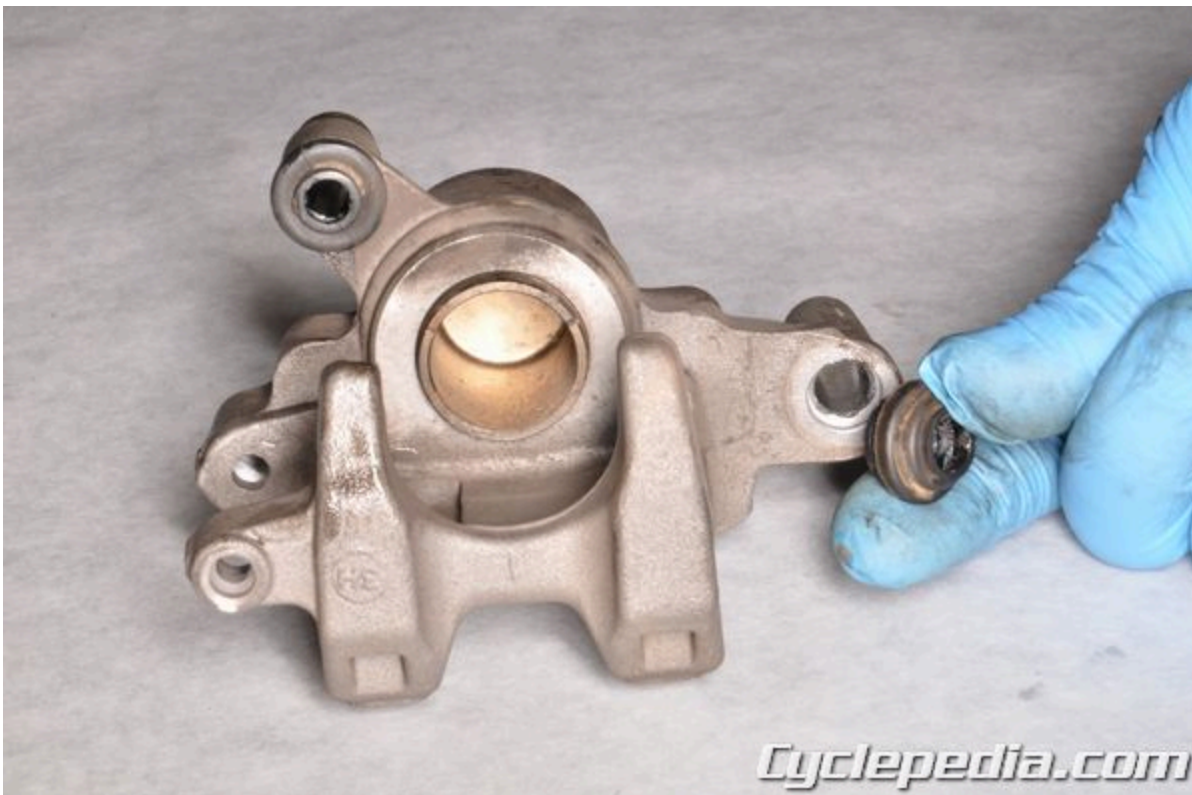


Coat the piston and caliper bore in fresh brake fluid and install the piston.





Apply a light coating of silicone grease to the rubber pin boots, then install them.



The smaller boot can be positioned on the bracket pin or the caliper body.

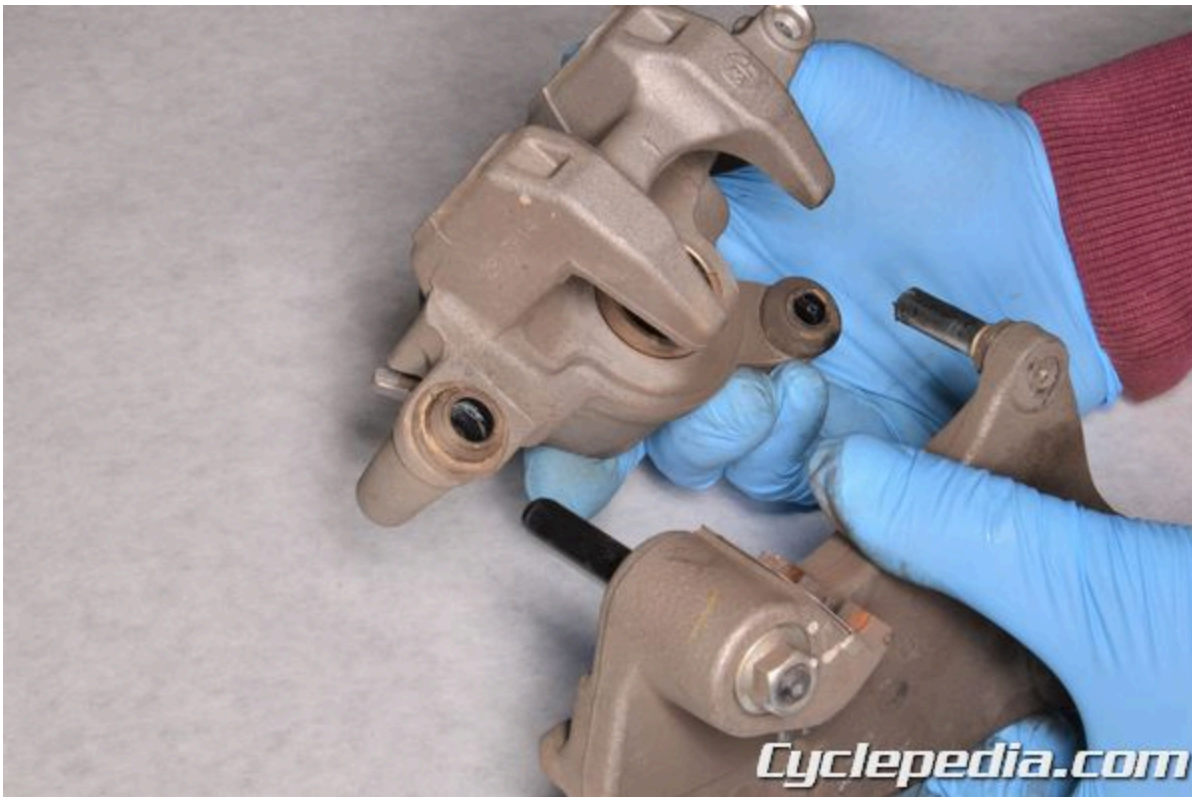


Install the brake pad spring.



If removed, install the pad retainer on the mounting bracket.





Lubricate the brake caliper sliding pins with a light coat of silicone brake grease and install the caliper to the bracket.

## Installation

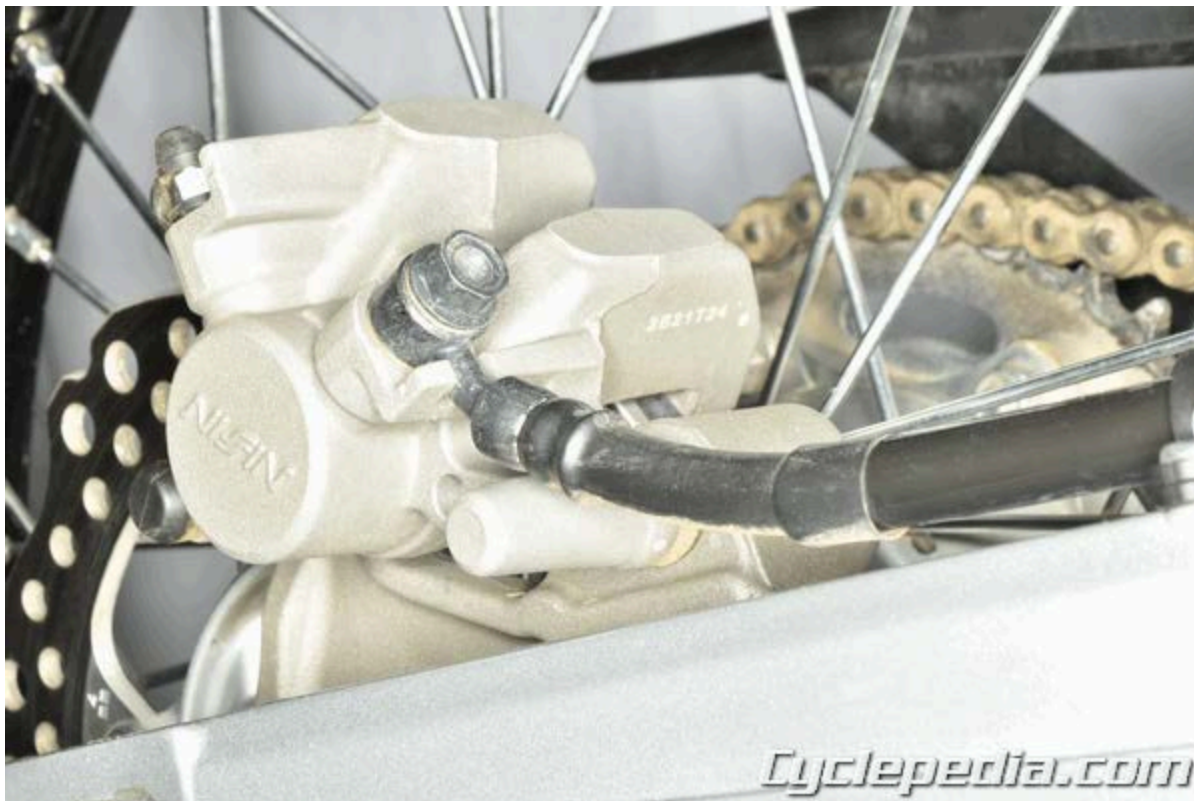


Position the brake caliper and mounting bracket to the swing arm by aligning the bracket to the guide rail.

On LA/LRA models, if the bracket was removed completely, position it next to the swing arm, then install the rear wheel speed sensor. See the [ABS Components](#) <sup>[4]</sup> topic for more information.



Install the rear wheel. See the [Rear Wheel](#) <sup>[3]</sup> topic for more information.



Install the brake hose and banjo bolt with two new sealing washers. Tighten the bolt to specification using a 12 mm socket.



**Brake hose oil bolt:** 34 N-m (3.5 kgf-m, 25 ft-lb)

Install the brake pads. See the [Brake Inspection](#) <sup>[1]</sup> topic for more information.

Fill the master cylinder reservoir with brake fluid and bleed the brakes. See the [Brake Fluid](#) <sup>[2]</sup> topic for more information.

URLs in this post:

[1] Brake Inspection: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/brake-inspection/>

[2] Brake Fluid: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/brake-fluid/>

[3] Rear Wheel : <https://www.cyclepedia.com/manuals/online/cpp-323/wheels/rear-wheel/>

[4] ABS Components: <https://www.cyclepedia.com/manuals/online/cpp-323/front-brake/abs-components/>

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## - Honda CRF300L Service Manual

### Rear Master Cylinder

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

**WARNING:** Brake fluid is very caustic and can cause damage to paint, chrome and plastic. Wipe up any spills immediately.

### Suggested Tools and Supplies

5 mm Hex Driver  
12 mm Socket  
Needle Nose Pliers  
Ratchet  
Torque Wrench  
Snap Ring Pliers  
Vernier Caliper and Bore Gauge  
Shop Towels  
Aerosol Brake Cleaner  
DOT 3 or 4 Brake Fluid  
Nitrile Gloves  
Safety Glasses

## Removal

Drain the brake fluid. See the [Brake Fluid](#) <sup>[1]</sup> topic for more information.



Disconnect the brake pedal from the master cylinder push rod joint. See the [Rear Brake Pedal](#) <sup>[2]</sup> topic for more information.





Loosen the two mounting bolts using a 5 mm hex driver.



Remove and discard the old mounting bolts.

Note: The master cylinder mounting bolts should be discarded and replaced with new ones during installation.



Pull the master cylinder gently away from the frame for better access to the banjo fitting, then remove the banjo bolt with a 12 mm socket. Discard the old sealing washers.

Note: It is a good idea to cover the bolt and hose with a plastic bag to prevent the danger of system contamination while the line is disconnected.



Remove the master cylinder from the frame bracket.



## Disassembly

Clean the outside of the master cylinder before disassembly to make sure no components are contaminated during overhaul.



Pull the rubber dust boot back to expose the snap ring.



Remove the snap ring with snap ring pliers.



Remove the push rod assembly.



Remove the piston and spring.





Separate the spring from the piston.

## Inspection



Check the bore of the master cylinder for abnormal wear. Measure the inside diameter of the master cylinder.

**Master cylinder bore inner diameter:** 12.700 – 12.743 mm (0.5000 – 0.5017 in)



Inspect the piston for abnormal wear, check the rubber cup for deterioration. Measure the outside diameter of the piston.

**Master cylinder piston outer diameter:** 12.657 – 12.684 mm (0.4983 – 0.4994 in)



Check the push rod assembly for damage or abnormal wear.

## Assembly





Position the spring onto the piston with the smaller coiled end facing the piston as shown.



Coat the new piston cups in fresh brake fluid, be sure they are not twisted or inside out when installed. Install the spring and piston into the master cylinder.



Install the push rod assembly.



Install the snap ring and be sure it is securely locked in its groove.





Push the rubber boot into place.

## Installation



Hold the master cylinder near the mount, then install the banjo bolt with two new sealing washers. Tighten the banjo bolt to specification using a 12 mm socket.

**Brake hose oil bolt:** 34 N-m (3.5 kgf-m, 25 ft-lb)



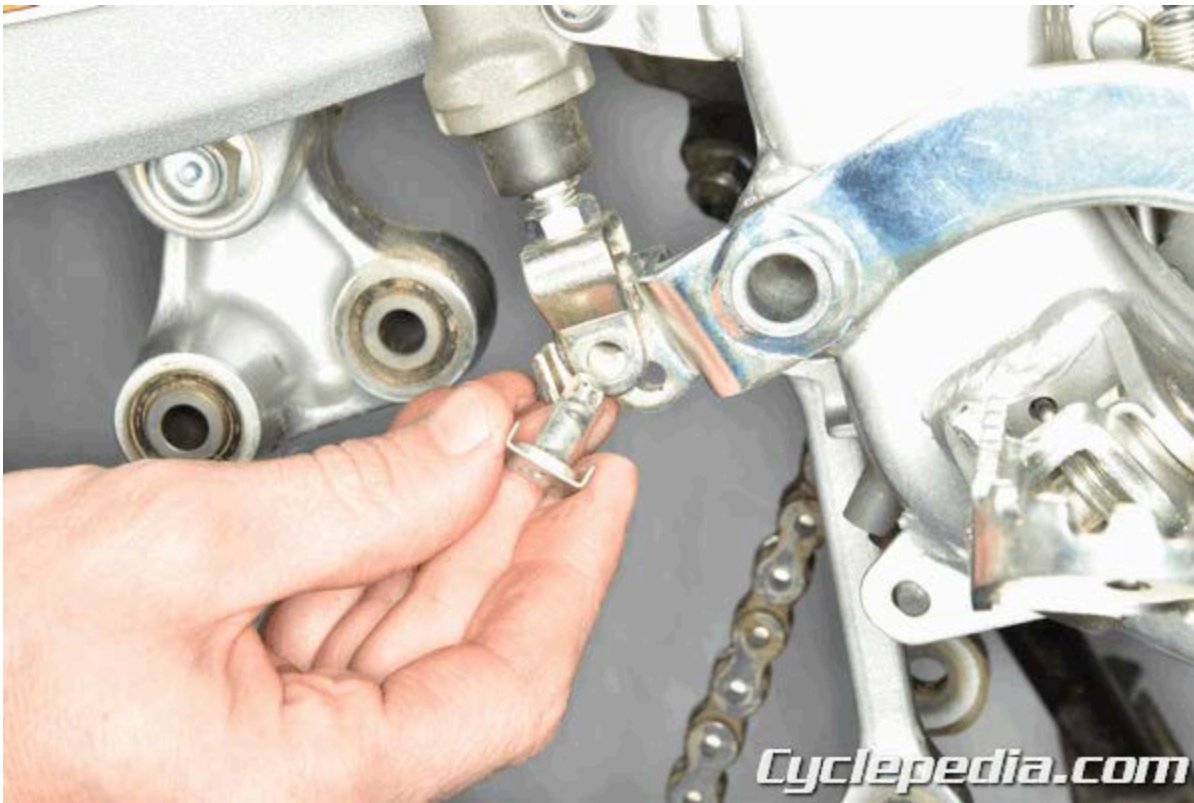
Install the master cylinder to the frame bracket and secure using two NEW ALOC bolts.



Tighten the master cylinder mounting bolts to specification using a 5 mm hex driver.

**Rear master cylinder bolt (ALOC bolt, replace):** 14 N-m (1.4 kgf-m, 10 ft-lb)





Reconnect the brake pedal to the master cylinder push rod joint. Install the joint pin and secure using a new cotter pin. See the [Rear Brake Pedal](#) <sup>[2]</sup> topic for more information.

Fill the master cylinder with the proper brake fluid from a tightly sealed container and bleed the brakes. See the [Brake Fluid](#) <sup>[1]</sup> topic for more information.  
URLs in this post:

[1] Brake Fluid: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/brake-fluid/>

[2] Rear Brake Pedal: <https://www.cyclepedia.com/manuals/online/cpp-323/front-brake/brake-pedal/>

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## - Honda CRF300L Service Manual

Rear Rotor

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

### Suggested Tools and Supplies

Micrometer

Dial Gauge and Magnetic Base

6 mm Hex Driver

Ratchet

Torque Wrench

Nitrile Gloves

Safety Glasses

## Inspection

Place the motorcycle on a stand so the rear wheel is off the ground.



Using a dial gauge and magnetic stand, measure the run-out of the rear rotor by rotating the disc slowly. Compare your reading with the specification.

**Brake disc warpage:** 0.30 mm (0.01 in) limit





Using a micrometer, measure the thickness of the rotor. If the measurements are not within specification replace the brake disc.

**Brake disc thickness:** 4.3 – 4.7 mm (0.17 – 0.19 in) standard, 4.0 mm (0.16 in) limit

## Removal

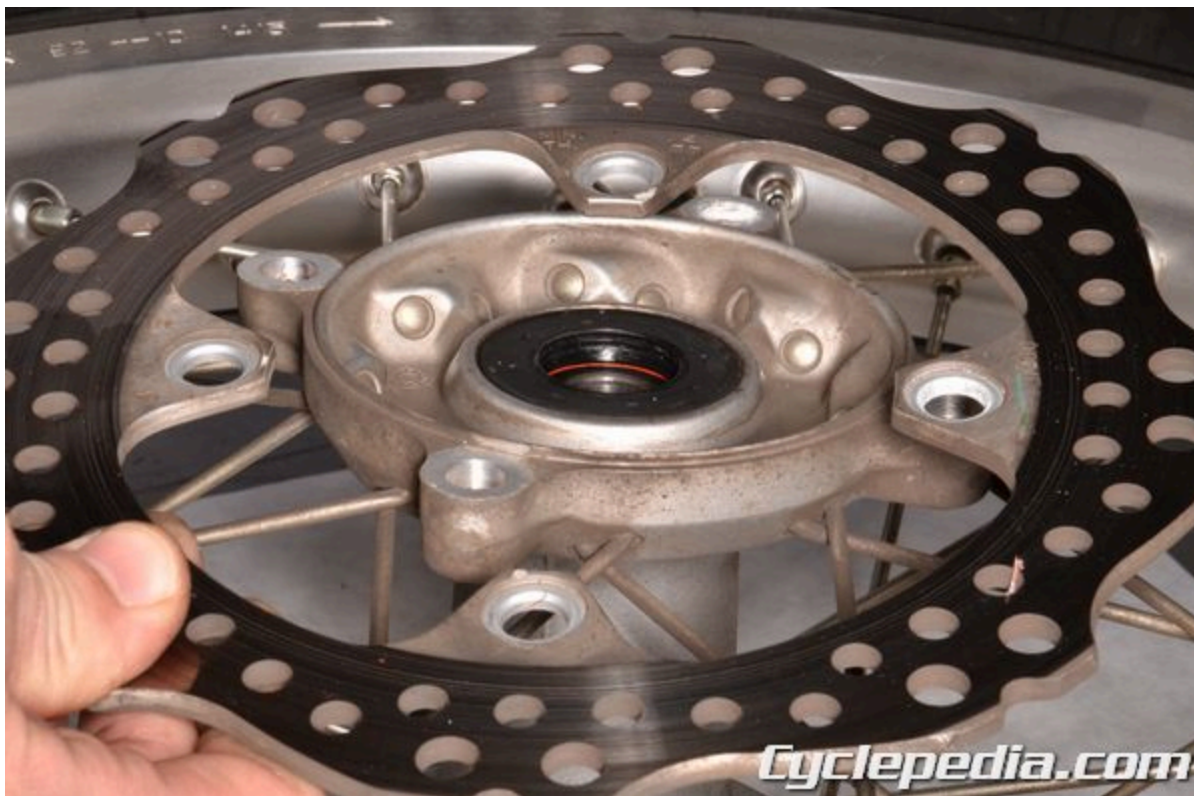
Remove the rear wheel for access. See the [Rear Wheel](#) <sup>[1]</sup> topic for more information.



Loosen the four rear brake rotor bolts evenly in a crisscross pattern with a 6 mm hex driver.

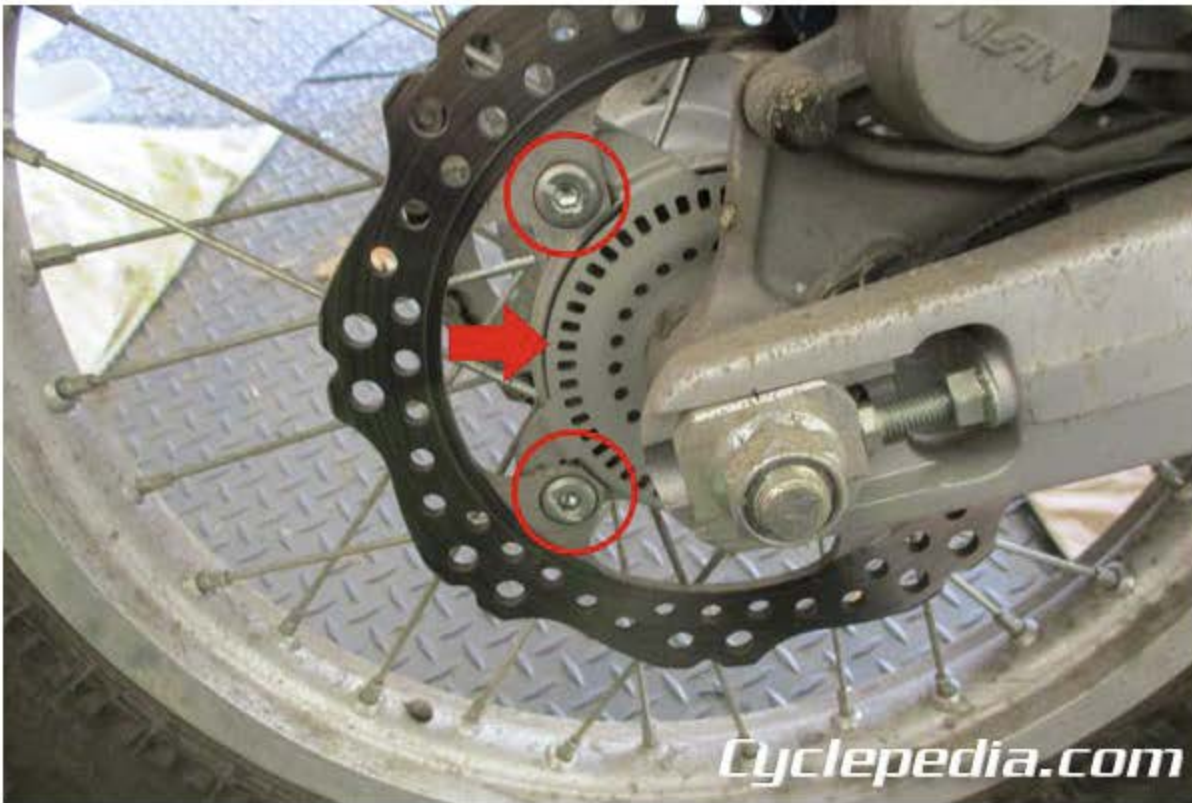


Remove the four brake rotor bolts. Discard the bolts and replace with new ones on installation.



Remove the brake rotor from the hub.





Note: On LA/LRA models (with ABS) the brake rotor bolts also secure the ABS pulser (tone) ring which is mounted just below the rotor. On these models be sure to carefully keep track of the pulser ring when the rotor is removed. Do not allow it to be dropped or otherwise damaged.

## Installation

Clean the rotor mounting surface carefully.

On LA/LRA models, make sure the ABS pulser (tone) ring is positioned properly on the wheel and aligned with the rotor mounting bolts.



Install the rotor to the wheel hub aligning it with the hub bolt holes (and the ABS pulser ring on models so equipped). Install new brake rotor bolts.



Tighten in crisscross pattern a little at a time. Tighten the bolts to specification with a 6 mm hex driver.

**Rear brake disc bolt (ALOC bolt, replace):** 42 N-m (4.3 kgf-m, 31 ft-lb)

Install the rear wheel. See the [Rear Wheel](#) <sup>[1]</sup> topic for more information.  
URLs in this post:



[1] Rear Wheel: <https://www.cyclepedia.com/manuals/online/cpp-323/wheels/rear-wheel/>  
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## - Honda CRF300L Service Manual

### Front Wheel

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### **Suggested Tools and Supplies**

10 mm Socket  
14 mm Hex Driver  
Ratchet  
Torque Wrench  
Nitrile Gloves  
Safety Glasses

### **Removal**

Raise the front wheel off the ground using a work stand or box under the frame. Secure the motorcycle so it will not fall during service.



Using a 10 mm socket to loosen the two pinch bolts on the bottom of the right fork leg.





Loosen the axle bolt using a 14 mm hex driver.



Support the wheel and remove the axle bolt.



Roll the wheel forward and out from between the forks. Do not apply the brake when the disc is not between the pads.



Remove the collars from each side of the wheel hub. The collars should be identical.

To inspect the front brake disc see the [Front Rotor](#) <sup>[1]</sup> topic.

To inspect the front wheel and axle see the [Wheel Inspection](#) <sup>[2]</sup> topic.



To replace the front wheel bearings see the [Wheel Bearing Replacement](#) <sup>[3]</sup> topic.

## Installation



Apply grease to the lips of the hub dust seals. Insert the wheel collars onto both sides of the wheel hub.



Roll the front wheel between the fork, centering the brake rotor between the brake pads.



Apply a light coat of grease to the front axle. Slide the axle in from the right side.



Tighten the axle bolt to specification using a 14 mm hex driver.

**Front axle bolt:** 69 N-m (7.0 kgf-m, 51 ft-lb)

Hold the front brake and compress the forks by pushing on the handlebar a few times to seat the axle.





Tighten the axle pinch bolts to specification using a 12 mm socket.

**Front axle holder bolt:** 22 N-m (2.2 kgf-m, 16 ft-lb)

On LA/LRA models check the wheel speed sensor air gap to ensure proper operation. See the [ABS Components](#) <sup>[4]</sup> topic for more information.

**Front Wheel Speed Sensor Air Gap:** 0.8 – 1.4 mm (0.03 – 0.06 in)

URLs in this post:

[1] Front Rotor: <https://www.cyclepedia.com/manuals/online/cpp-323/front-brake/front-brake-rotor/>

[2] Wheel Inspection: <https://www.cyclepedia.com/manuals/online/cpp-323/wheels/wheel-inspection/>

[3] Wheel Bearing Replacement: <https://www.cyclepedia.com/manuals/online/cpp-323/wheels/bearing-replacement/>

[4] ABS Components: <https://www.cyclepedia.com/manuals/online/cpp-323/front-brake/abs-components/>

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## - Honda CRF300L Service Manual

### Rear Wheel

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### Suggested Tools and Supplies

10 mm Wrench  
12 mm Wrench  
17 mm Wrench  
24 mm Socket  
Ratchet  
Torque Wrench  
Rubber Mallet  
Grease  
Nitrile Gloves  
Safety Glasses

### Removal

Use a jack or a work stand to raise the rear end up and get the wheel off the ground slightly. Make certain the chassis is secure and won't topple over when the rear wheel is removed.

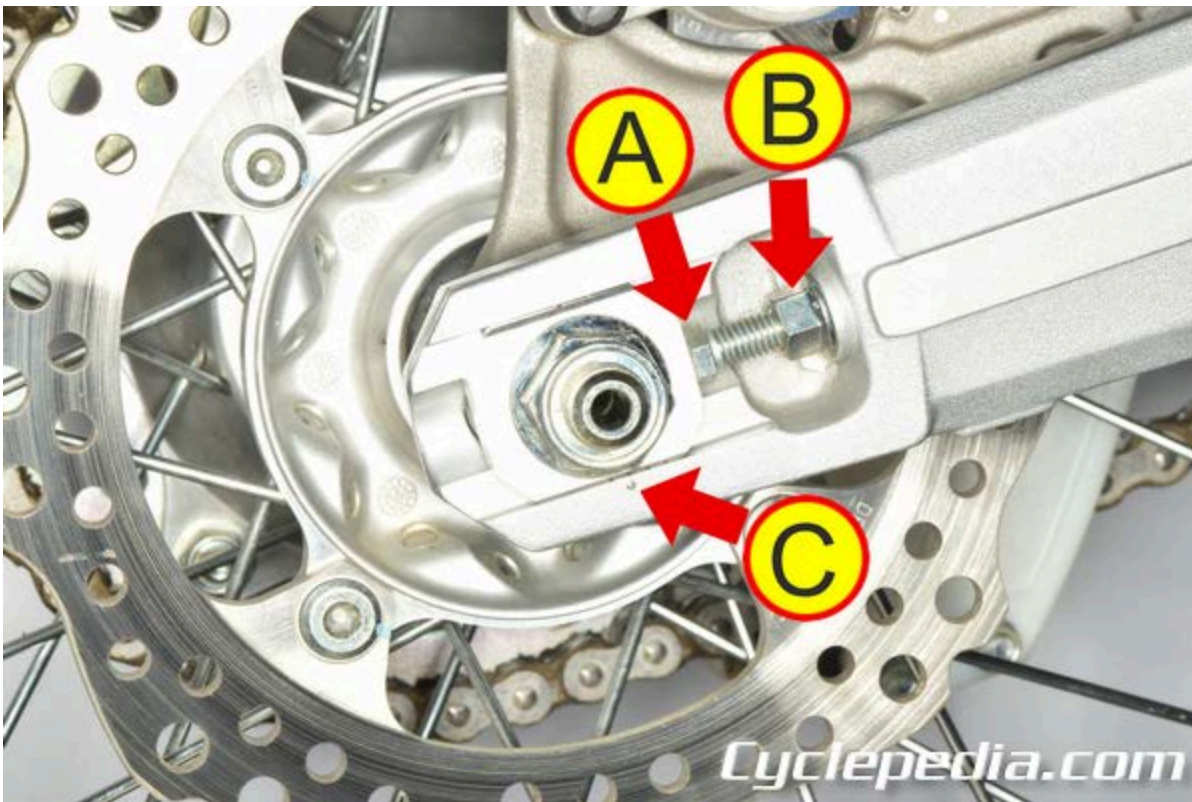


Hold the rear axle with a 17 mm wrench.





Loosen the rear axle nut with a 24 mm socket.



Loosen the locknuts (B) with a 12 mm wrench, and turn the adjuster nuts (A) with a 10 mm wrench to obtain maximum chain slack. Note the axle tensioner marks (C) will be used during installation and adjustment to make sure the chain is properly aligned.





Remove the rear axle nut.



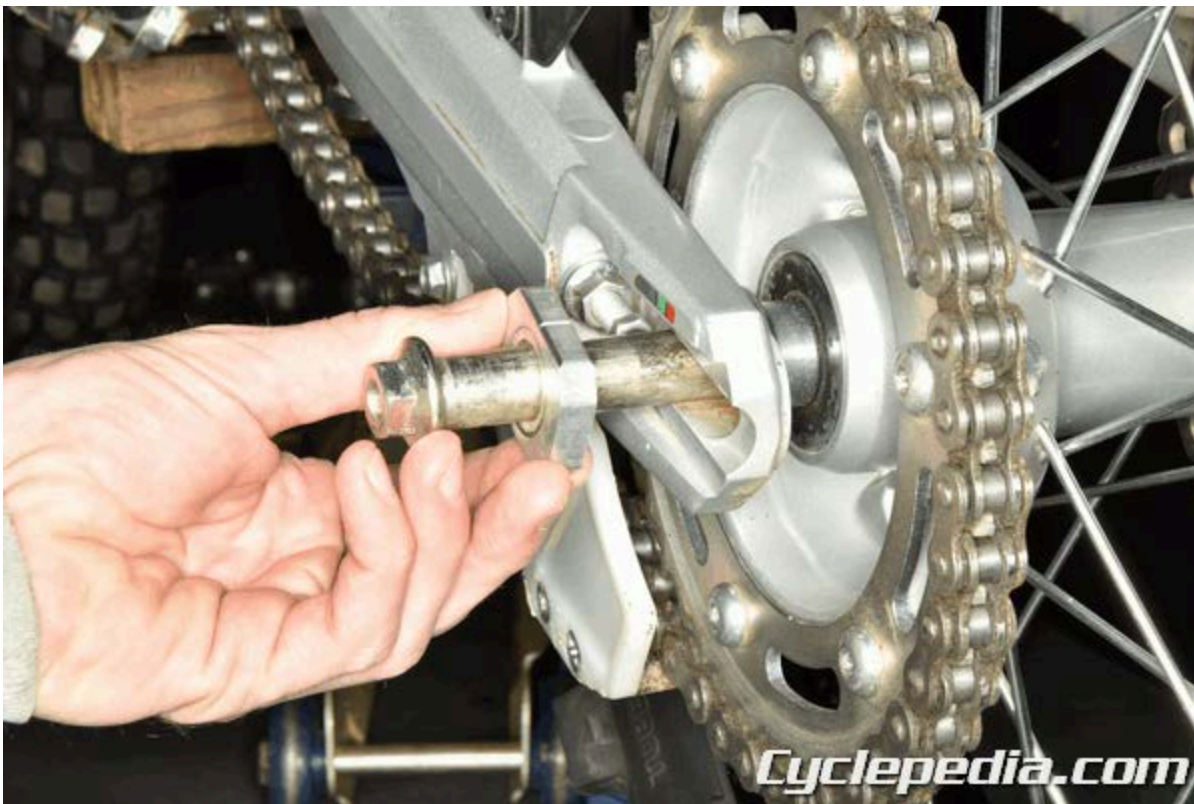
Remove the right drive chain adjuster plate.

Note: Both swing arm plates are installed with a particular orientation. Take note of them during removal to ensure proper positioning during installation.



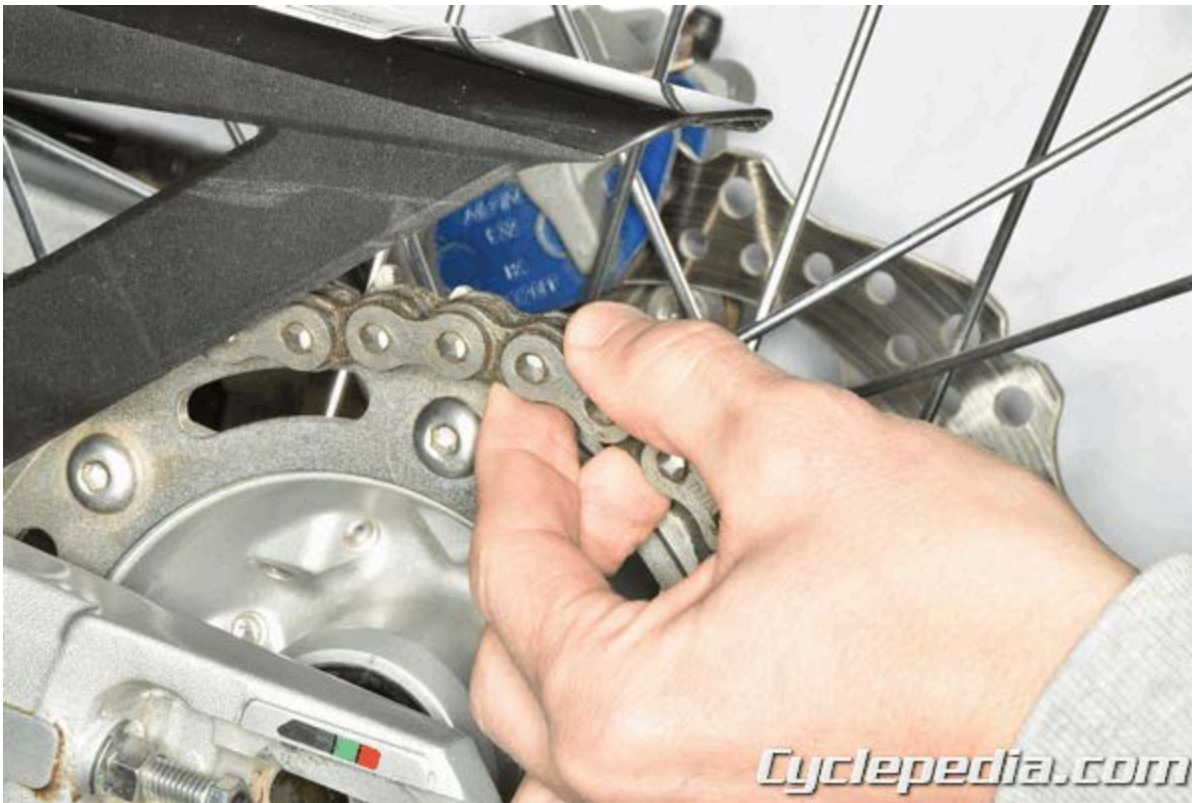


Tap the axle gently outward with a soft faced mallet.



Remove the axle and the left chain adjuster plate.





Push the wheel forward enough to remove the chain from the sprocket.



Remove the rear wheel with side collars. Do not apply the brake when the disc is not between the pads.





Remove the collars from each side of the wheel. The two side collars should be identical on these models.

To inspect the rear brake disc see the [Rear Rotor](#) <sup>[1]</sup> topic.

To inspect the rear wheel see the [Wheel Inspection](#) <sup>[2]</sup> topic.

To replace the rear wheel bearings see the [Wheel Bearing Replacement](#) <sup>[3]</sup> topic.

## **Installation**



Apply grease to the lips of the dust seals. Install the collars into each side of the rear wheel.

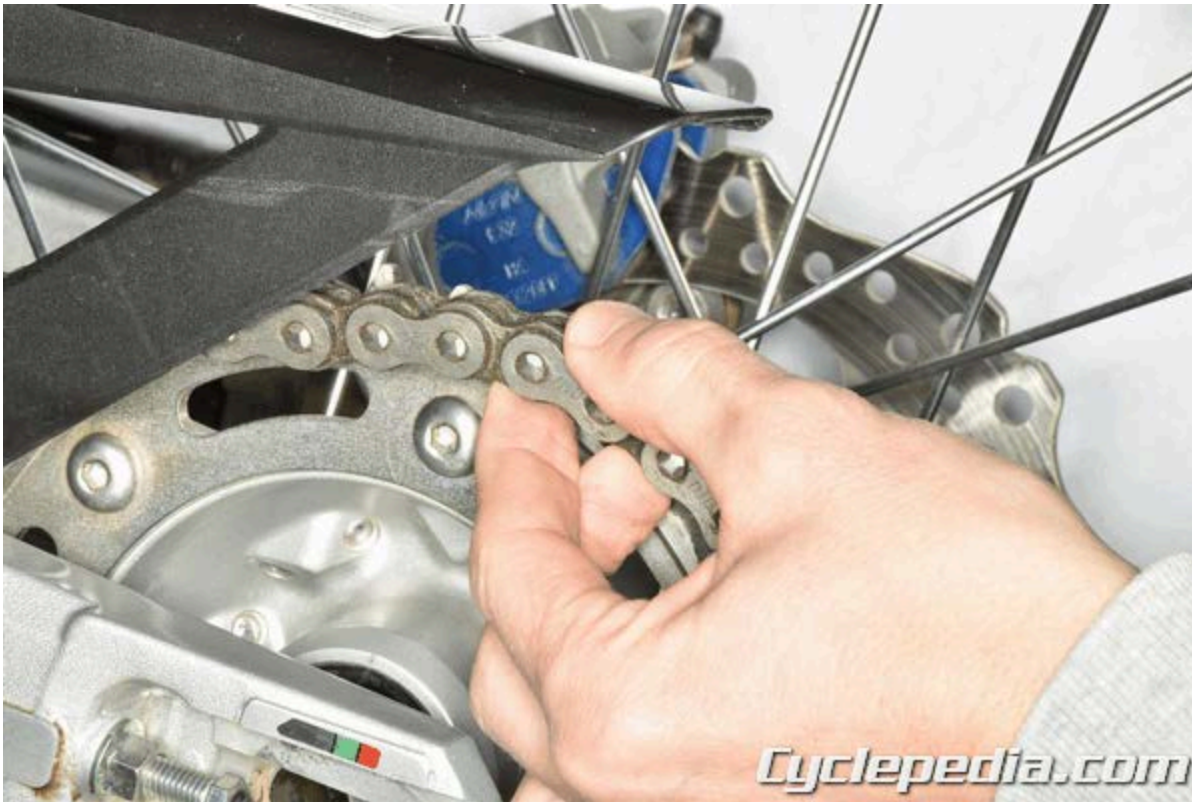


Make sure the rear brake caliper bracket is in place on the swing arm.





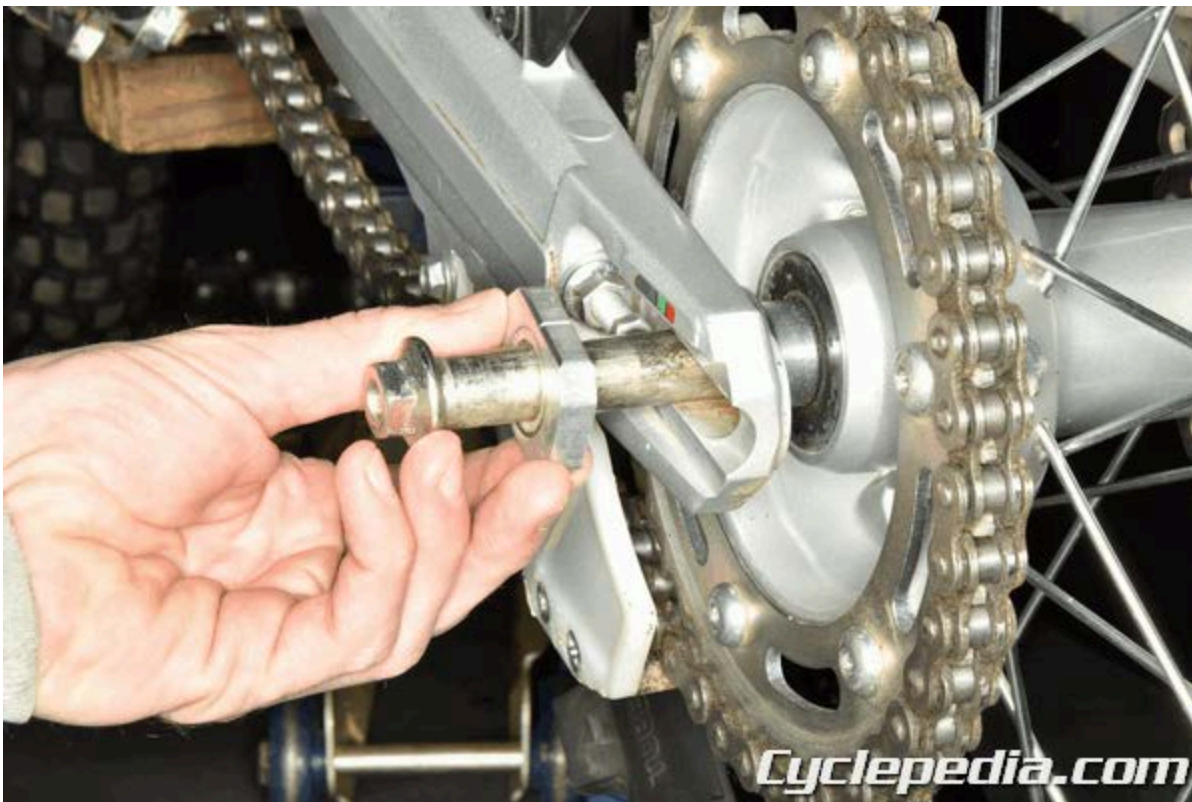
Roll the wheel into the swing arm. Fit the disc rotor between the brake pads in the rear caliper while moving the wheel into position.



Put the chain back in place around the rear sprocket.

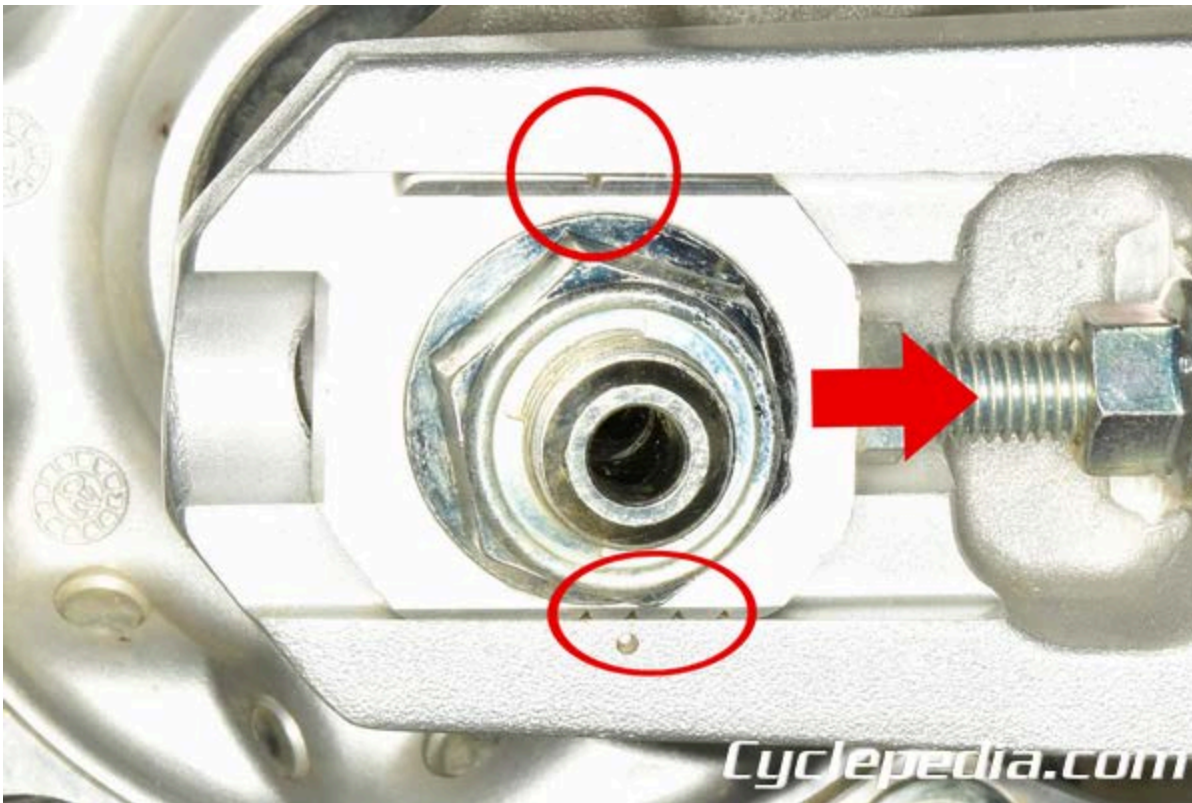


Place the left adjuster plate in position on the axle and use a light coat of grease on the axle surface to keep it from seizing in the bearings.



Install the rear axle and left side adjuster plate (make sure the plate is oriented as noted during removal).



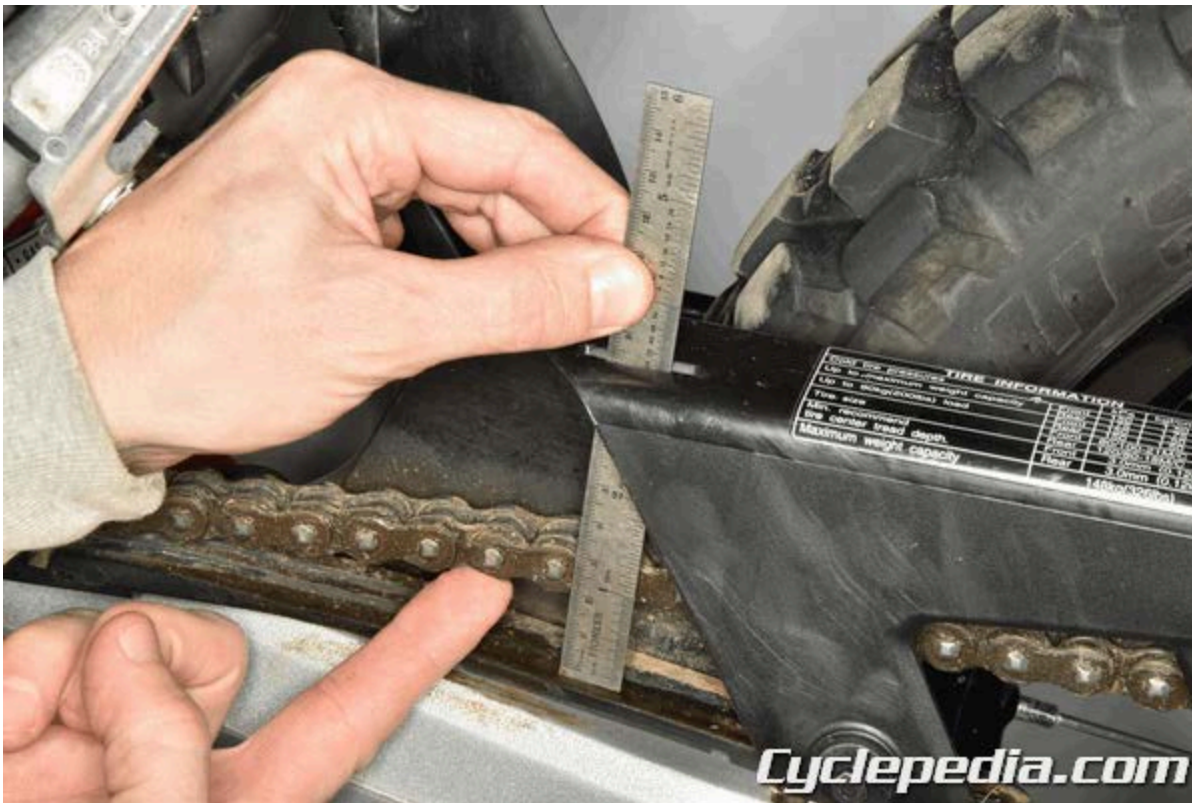


Install the right side adjuster plate, again making sure it is oriented properly. The single mark on both plates should face upward (circle), while the multiple chain alignment marks (oval) should face down and toward the front of the bike.



Thread on the rear axle nut.





Adjust the drive chain slack. See the [Drive Chain Adjustment](#) <sup>[4]</sup> topic for more information.



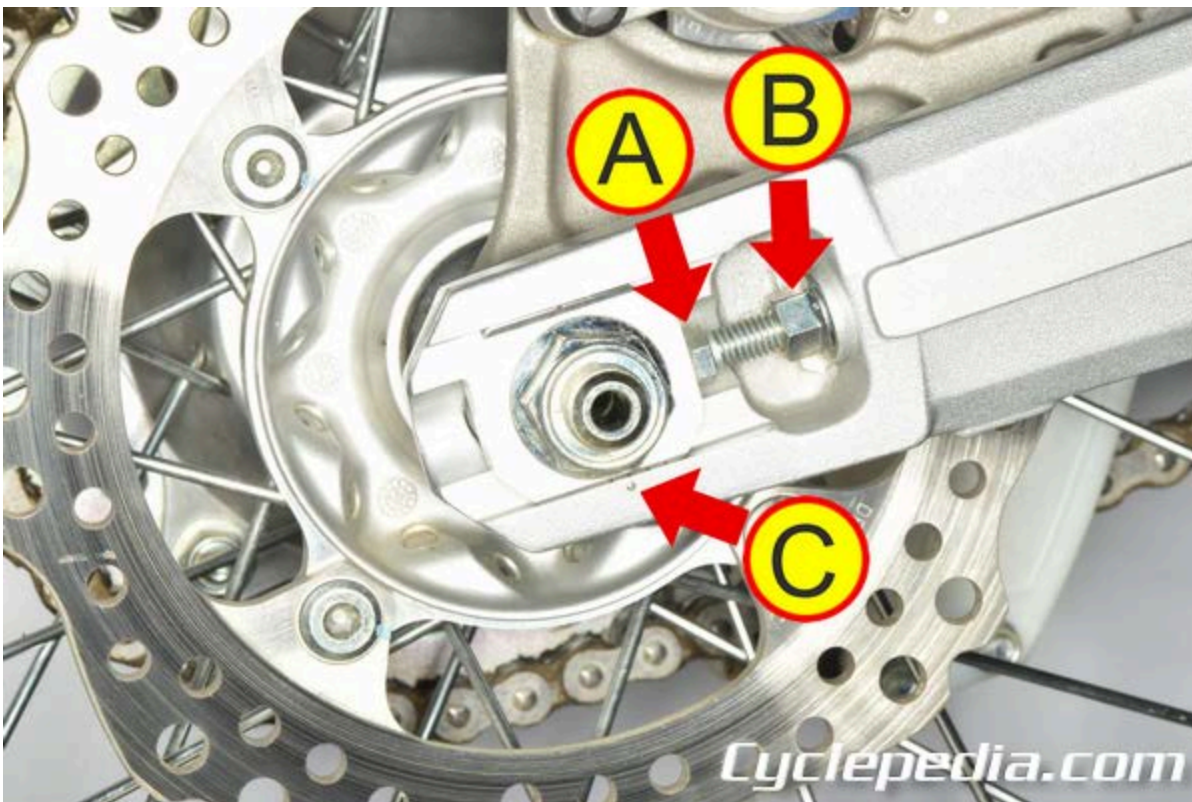
Again, hold the rear axle with a 17 mm wrench.





Tighten the rear axle nut with a 24 mm socket.

**Rear axle nut (self-lock nut):** 88 N-m (9.0 kgf-m, 65 ft-lb)



Hold the adjuster (A) with a 10 mm wrench and tighten the locknut (B ) against the swing arm with a 12 mm wrench. Make sure the rear axle is aligned correctly and the chain slack is correct.

**Drive chain adjuster lock nut (UBS nut):** 27 N-m (2.8 kgf-m, 20 ft-lb)

On LA/LRA models check the wheel speed sensor air gap to ensure proper operation. See the [ABS Components](#) <sup>[5]</sup> topic for more information.

**Rear wheel speed sensor air gap:** 0.7 – 1.3 mm (0.03 – 0.05 in)

URLs in this post:

[1] Rear Rotor: <https://www.cyclepedia.com/manuals/online/cpp-323/front-brake/rear-brake-rotor/>

[2] Wheel Inspection: <https://www.cyclepedia.com/manuals/online/cpp-323/wheels/wheel-inspection/>

[3] Wheel Bearing Replacement: <https://www.cyclepedia.com/manuals/online/cpp-323/wheels/bearing-replacement/>

[4] Drive Chain Adjustment: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/drive-chain-adjustment/>

[5] ABS Components: <https://www.cyclepedia.com/manuals/online/cpp-323/front-brake/abs-components/>

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Wheel Inspection

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

**Suggested Tools and Supplies**

Floor Jack and Stand

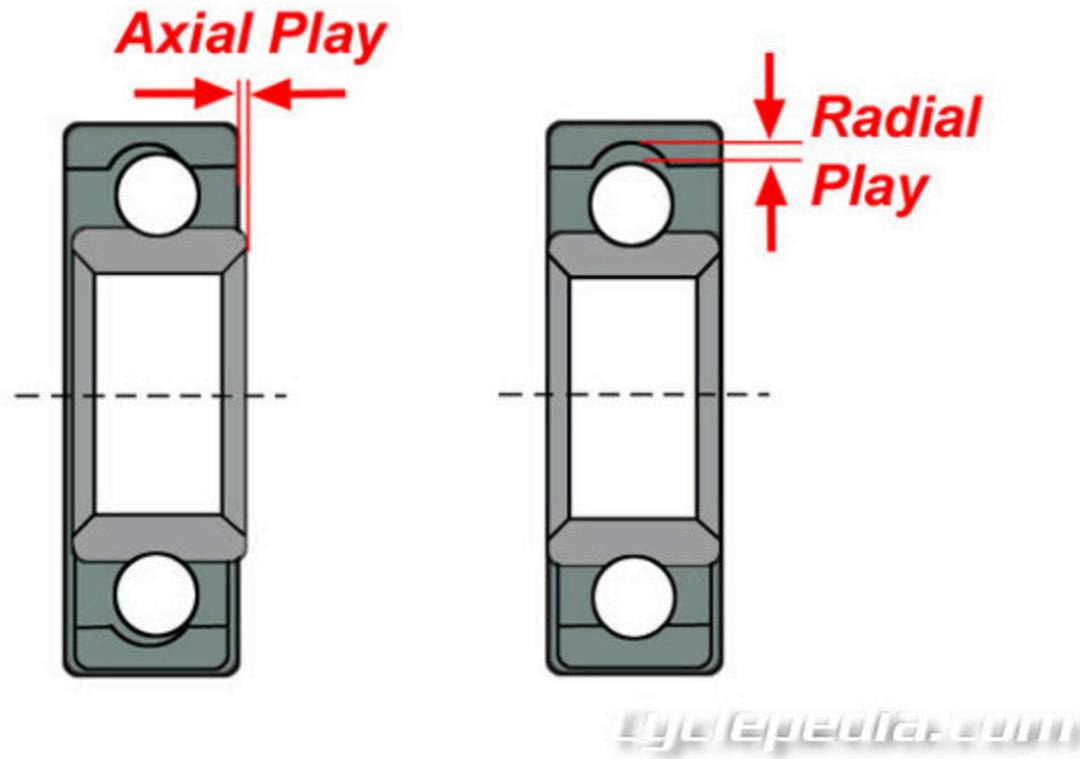
V-blocks

Dial Gauge with Magnetic Stand

Spoke Wrench

Nitrile Gloves

Safety Glasses



Raise the front wheel off the ground with a suitable jack or stand. Rotate the front wheel and check for excessive play or roughness. Do the same for the rear.



If excessive play or roughness is found check the wheel bearings by turning them in the hub. Remove the wheels from the motorcycle. If the bearings have play in them or are rough replace all the bearings for that wheel. Also, replace the bearings if the seal is damaged. See the [Bearing Replacement](#) <sup>[1]</sup> topic for more information.



Place the wheel on a truing stand and use a dial indicator to check if the rim is out of true (axial runout). The specifications for the front and rear wheels are the same. Check for lateral wobble, as above. The service limit is **2.0 mm (0.08 in)** or less.



**Wheel rim runout (Axial):** 2.0 mm (0.08 in) limit



Move the dial indicator and set it up to read radial runout. Check for radial hop. The service limit is **2.0 mm (0.08 in)** or less.

**Wheel rim runout (Radial):** 2.0 mm (0.08 in) limit



Check the wheel hub center adjustment for the front wheel by measuring the distance from the lowest edge of the rotor to a point parallel to the center of the rim (the point of the rim where the spokes are

threaded). Use straight edge held straight across the rim surface so the measurement is straight from the disc to the straight edge. Compare the measurement with specification.

**Front wheel hub-to-rim distance:** 51.5 mm (2.03 in)



Check the wheel hub center adjustment for the rear wheel in the same manner. Make sure the measurement is parallel to the wheel and not angled in toward the rim.

**Rear wheel hub-to-rim distance:** 63.2 mm (2.49 in)





If your readings are off, adjust the spokes with a spoke wrench. Remember to always use small adjustments when adjusting spokes. The spokes should be snug enough that they do not make a dull sound when they are tapped. To correct lateral wobble loosen spokes on the side of excessive runout. If this doesn't fix the problem tighten spokes on the opposite side of the excessive runout. To correct radial hop equally loosen left and right spokes 180° from the high spot. Equally tighten the left and right spokes at the high spot.

**Front spoke:** 36 Pieces

**Thread:** BC 3.2 mm

**Spoke Torque:** 3.7 N-m (0.4 kgf-m, 2.7 ft-lb)

**Rear spoke:** 32 Pieces

**Thread:** BC 3.2 mm

**Spoke Torque:** 3.7 N-m (0.4 kgf-m, 2.7 ft-lb)



Inspect both axles for signs of corrosion or damage. Clean or replace, as applicable.



Check the front and rear axles for signs of bends, wear, or damage. Roll them on a flat surface (with the raised lip held off the side edge of the surface).



If any bend or irregularity is noticed, use a dial indicator to measure any radial runout. The service limit is **0.20 mm (0.01 in)** or less. Replace any axle that has a bend or damage.

**Axle runout:** 0.2 mm (0.01 in) limit  
URLs in this post:



[1] Bearing Replacement: **<https://www.cyclepedia.com/manuals/online/cpp-323/wheels/bearing-replacement/>**

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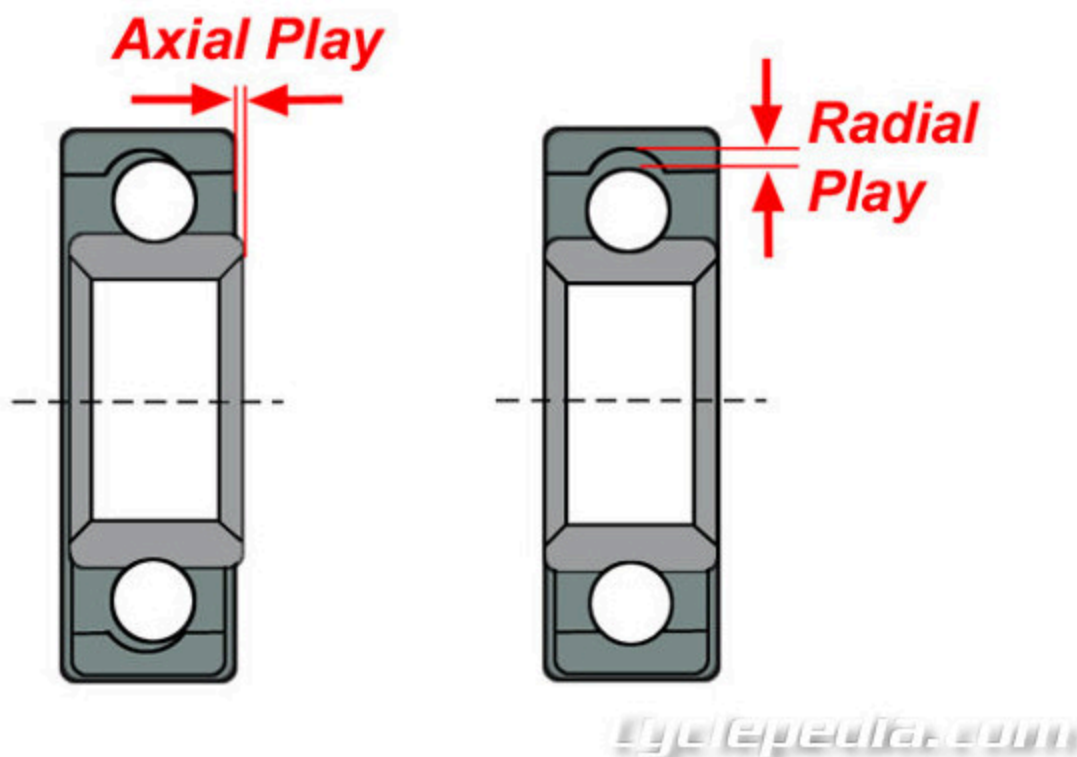
## Wheel Bearing Replacement

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

### Suggested Tools and Supplies

Bearing Puller  
Heat Gun  
Bearing Driver  
Hammer  
Grease  
Nitrile Gloves  
Safety Glasses

### General Instructions



Replace the bearing if it will not turn smoothly or has excessive axial or radial play.

Replace bearings as a set, and do not reuse old bearings.

Clean and inspect the bearing cavity after bearing removal. Remove any dirt and corrosion. Make certain not to remove metal. This will adversely affect bearing fit.





Place the new bearings in the freezer for about an hour before installing them.



Heating the wheel hub (or other bearing cavity) will cause the hub to expand slightly and will make bearing installation easier.



Remove one of wheel bearings using a driver from the opposite side (such as with the special tool) or use an internal jawed bearing puller with a puller bridge or a slide hammer. If a bearing puller or other special tools are not available, you can use a long flat faced punch and a steel hammer but take great care not to damage the hub. With either technique, heating the wheel around the bearing with a heat gun will make this job much easier.



Install the bearings with a suitable bearing installer tool or a socket with the same outside diameter as the OD of the bearing. Make sure the sealed side of the bearing is facing outward and the bearing is



fully seated after installation. Only contact the bearing with the driver on its outer race. Do not drive the bearing in by its inner race.

## Front Wheel

Remove the following for access:

[Front Wheel](#) <sup>[1]</sup>

[Front Rotor](#) <sup>[2]</sup>



Remove the dust seals with a seal puller or pry tool. Replace them with new seals upon reassembly.



Check the bearings for rough action or looseness by turning them with your finger. If they feel loose or resist turning, replace them with new bearings.



Use a suitable bearing puller to remove the bearings one at a time.

Alternately the bearings can be driven out from the opposite side using the OEM recommended tools:

#### **Special Tools**

**Bearing Remover Head, 17 mm:** 07746-0050500



**Bearing Remover Shaft: 07746-0050100**



With one bearing removed, pull the center spacer out of the hub. Flip the wheel over to the other side. Pull the second bearing out of the hub.



Note install the left (brake side) hub bearing first. Heat the bearing area of the wheel with a heat gun, take one of the bearings out of the freezer and install it into the right of the hub side with its sealed side facing out. You can use a bearing installer tool or a socket with the same outside diameter as the

bearing. Make sure the bearing is fully seated. Flip the wheel over. Install the distance collar and drive in the other bearing in the same manner.

### Special Tools

**Attachment 32 x 35 mm:** 07746-0010100

**Pilot, 17 mm:** 07746-0040400

**Driver:** 07749-0010000



Apply grease to the lips of the dust seals and drive them into place so that their markings face out. Use a suitable driver that has the same outside diameter as the seal.

## Rear Wheel

Remove the following for access:

[Rear Wheel](#) <sup>[3]</sup>

[Rear Rotor](#) <sup>[4]</sup>

[Rear Wheel Sprocket](#) <sup>[5]</sup>





Remove the dust seals with a seal puller or pry tool. Replace them with new seals upon reassembly.



Check the bearings for rough action or looseness by turning them with your finger. If they feel loose or resist turning, replace them with new bearings.



Use a suitable bearing puller to remove the bearings one at a time.

Alternately the bearings can be driven out from the opposite side using the OEM recommended tools:

#### **Special Tools**

**Bearing Remover Head, 17 mm:** 07746-0050500

**Bearing Remover Shaft:** 07746-0050100



With one bearing removed, pull the center spacer out of the hub. Flip the wheel over to the other side.



Pull the second bearing out of the hub.



Coat the bearing cavity with grease. Heat the bearing area of the wheel with a heat gun, take one of the bearings out of the freezer and install it into the right of the hub side with its sealed side facing out. You can use a bearing installer tool or a socket with the same outside diameter as the bearing. Make sure the bearing is fully seated.

#### **Special Tools**

**Attachment 42 x 47 mm:** 07746-0010300

**Pilot, 17 mm:** 07746-0040400

**Driver:** 07749-0010000



Flip the wheel over. Install the distance collar.



Drive in the other bearing in the same manner.





Apply lithium soap based grease to the lips of the dust seals and drive them into place so that their markings face out. Use a suitable driver that has the same outside diameter as the seal.  
URLs in this post:

[1] Front Wheel: <https://www.cyclepedia.com/manuals/online/cpp-323/wheels/front-wheel/>

[2] Front Rotor: <https://www.cyclepedia.com/manuals/online/cpp-323/front-brake/front-brake-rotor/>

[3] Rear Wheel: <https://www.cyclepedia.com/manuals/online/cpp-323/wheels/rear-wheel/>

[4] Rear Rotor: <https://www.cyclepedia.com/manuals/online/cpp-323/rear-brake/rear-brake-rotor/>

[5] Rear Wheel Sprocket: <https://www.cyclepedia.com/manuals/online/cpp-323/final-drive/rear-wheel-sprocket/>

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## - Honda CRF300L Service Manual

### Battery

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

#### Suggested Tools and Supplies

5 mm Hex Driver  
10 mm Socket or Wrench  
#2 Phillips Screwdriver  
Ratchet  
Meter/DVOM  
Battery Charger  
Grease  
Nitrile Gloves  
Safety Glasses

### Specifications

**Battery Type:** YTZ8V

**Capacity:** 12 V – 7 Ah (10 HR)

**Charging Current (Normal):** 0.7 A/5 – 10 h

**Charging Current (Quick):** 3.5 A/1 h

### Battery Removal

Make sure the ignition switch is in the **OFF** position.



Remove the left side cover and fuel tank shroud for access. See the [Bodywork](#) <sup>[1]</sup> topic for more information.

Note: Always remove the negative lead first.



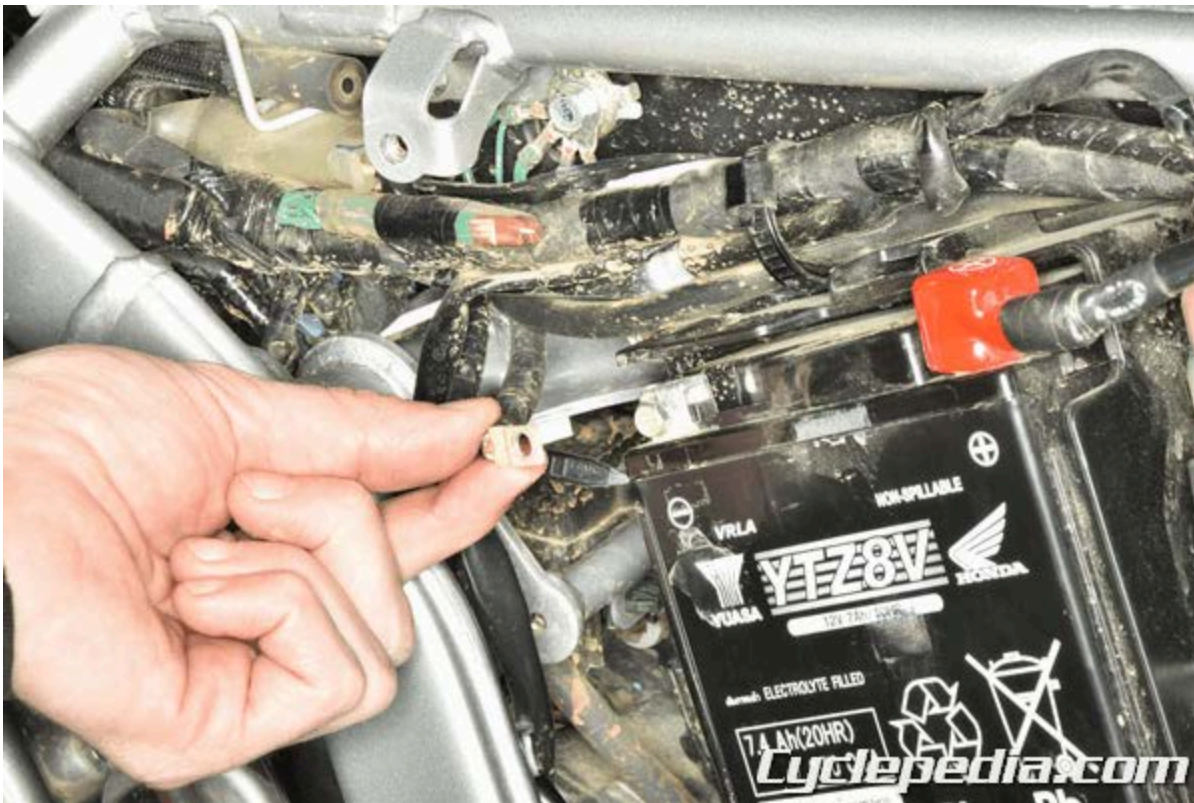


Remove the bolt from the battery hold down band using a 5 mm hex driver.



Free the top of the hold down band from the tab at the top of the tray and remove the band.





Loosen the negative battery cable screw with a 10 mm wrench/socket or a #2 Phillips driver. Remove the screw, disconnect the cable from the battery. Install the screw back into the battery terminals to keep from losing it. If desired, place a plastic bag over the cable end to make sure it doesn't accidentally ground and contact the terminal during service.

**CAUTION:** To prevent accidental shorts and possible injury or damage, always remove the negative lead first.





Pull back the red rubber cover from the positive battery terminal. Loosen the terminal screw with the wrench/socket or #2 Phillips. Remove the screw and disconnect the positive cable from the battery. Remove the battery from the battery box.

Note: Again, place the screw back in the battery terminal to keep from losing it.

Inspect the battery terminals for signs of corrosion. If found, pour some warm water over the battery terminals then clean them using a wire brush. Remove any debris after cleaning.

## Battery Box Removal

Remove the battery from the box as detailed earlier in this section.

Remove the turn signal relay and the starter relay from the box and position aside. See the [Relays](#) <sup>[2]</sup> and [Starter System](#) <sup>[3]</sup> topics for more information.



Open the wire band on to free the harness on top of the battery box.

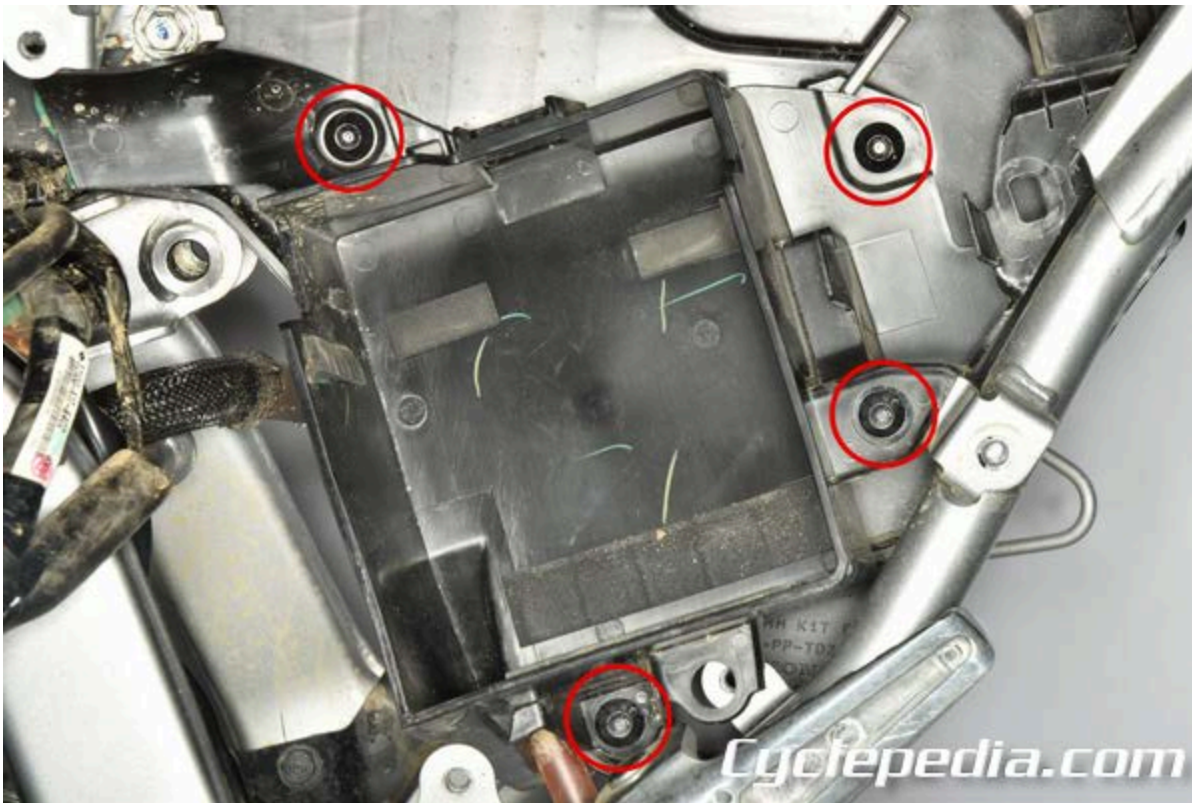


Pull the harness off of the frame tab as shown.

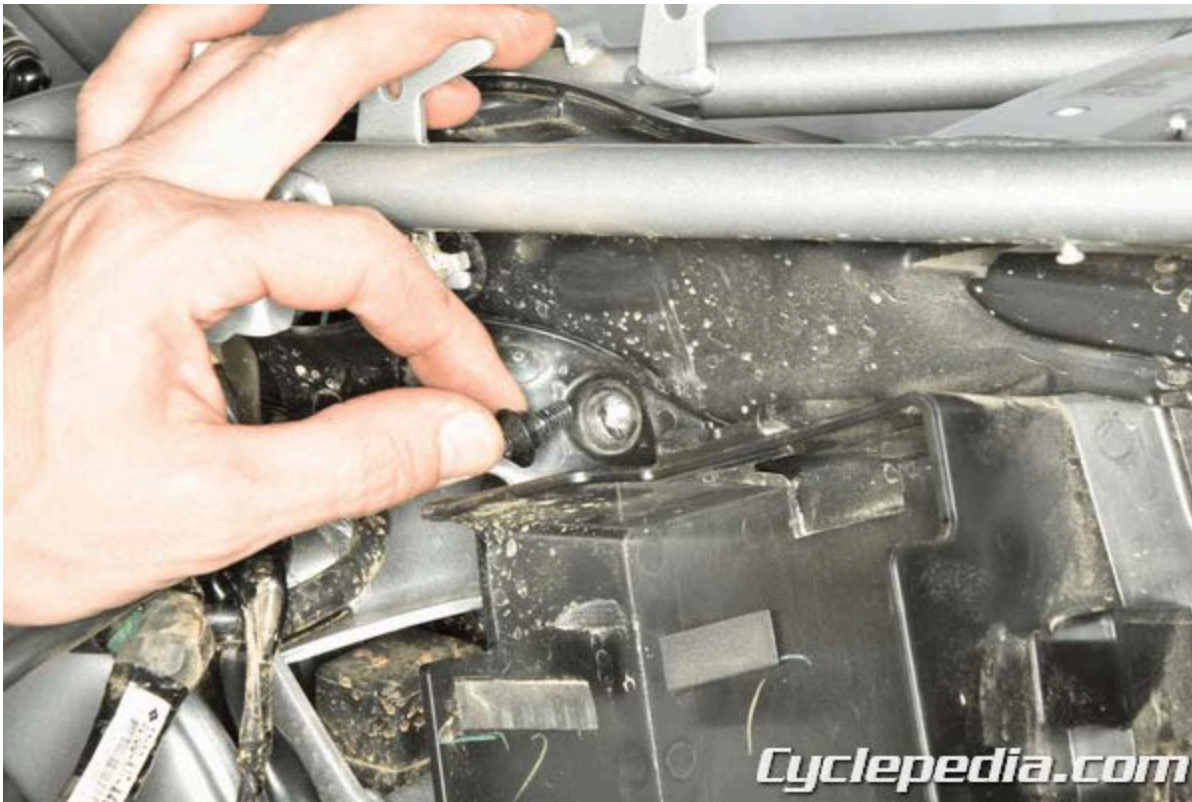


Free the positive battery cable retaining tab from the battery box.





Loosen the four battery box mounting bolts using a 5 mm hex driver.



Remove the mounting bolts.





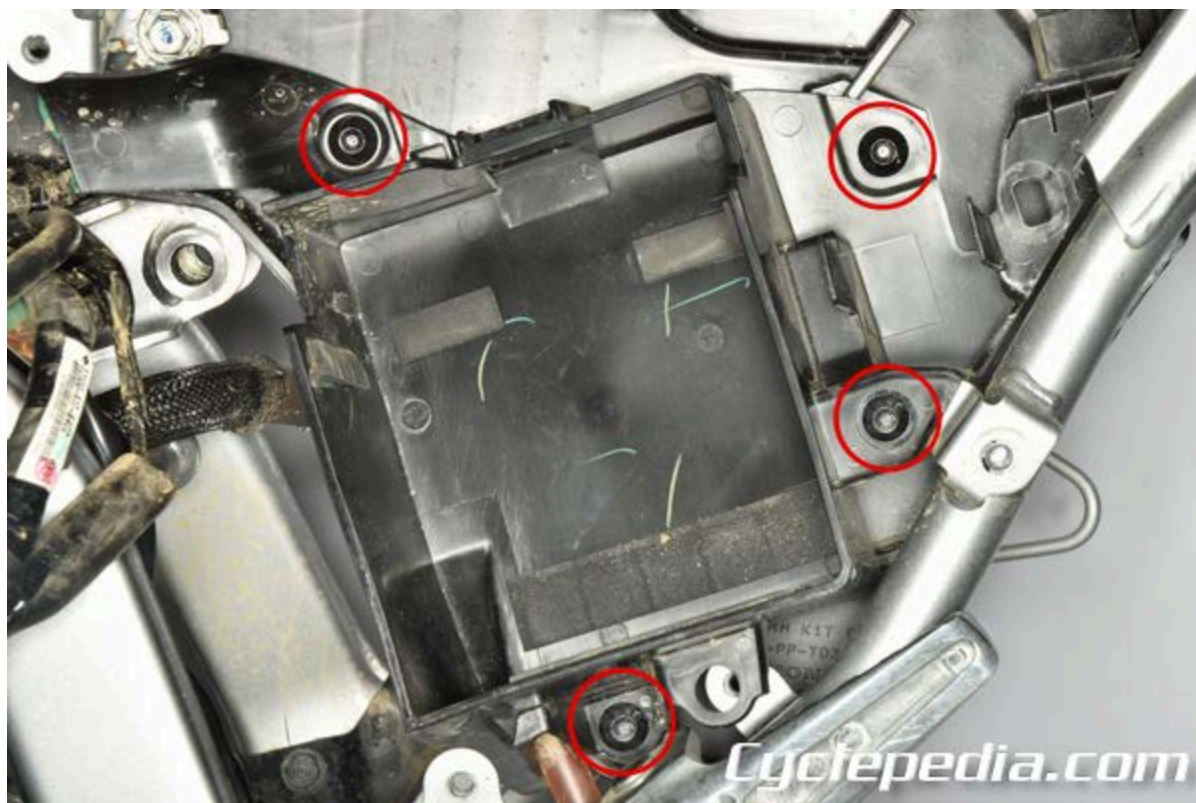
Remove the battery box from the frame.

## **Battery Box Installation**



Install the battery box to the frame and loosely thread the four mounting bolts.





Tighten the four battery box mounting bolts to specification using a 5 mm hex driver.

**Battery box bolt:** 7.0 N-m (0.7 kgf-m, 5.2 ft-lb)



Set the wiring harness on the frame tab as shown.





Close the wire band to secure the harness.

Install the starter relay and the turn signal relay to the stays on the box. See the [Starter System](#) <sup>[3]</sup> and [Relays](#) <sup>[2]</sup> topics for more information.

Install the battery to the box as detailed later in this section.

## Battery Installation





Connect the positive lead first and tighten the terminal bolt securely using a 10 mm socket/wrench or a #2 Phillips driver. Pull the rubber boot over the positive cable and terminal to prevent accidental shorts. Then repeat for the negative battery cable.

**WARNING: Do not over-tighten and crack the soft metal of the battery terminal.**

Note: It is recommended to coat the battery terminals with grease after connection to prevent corrosion.



Install the hold down bad by setting the hook at the top on the tab, then installing the mounting bolt.



Tighten the battery band bolt securely using a 5 mm hex driver.

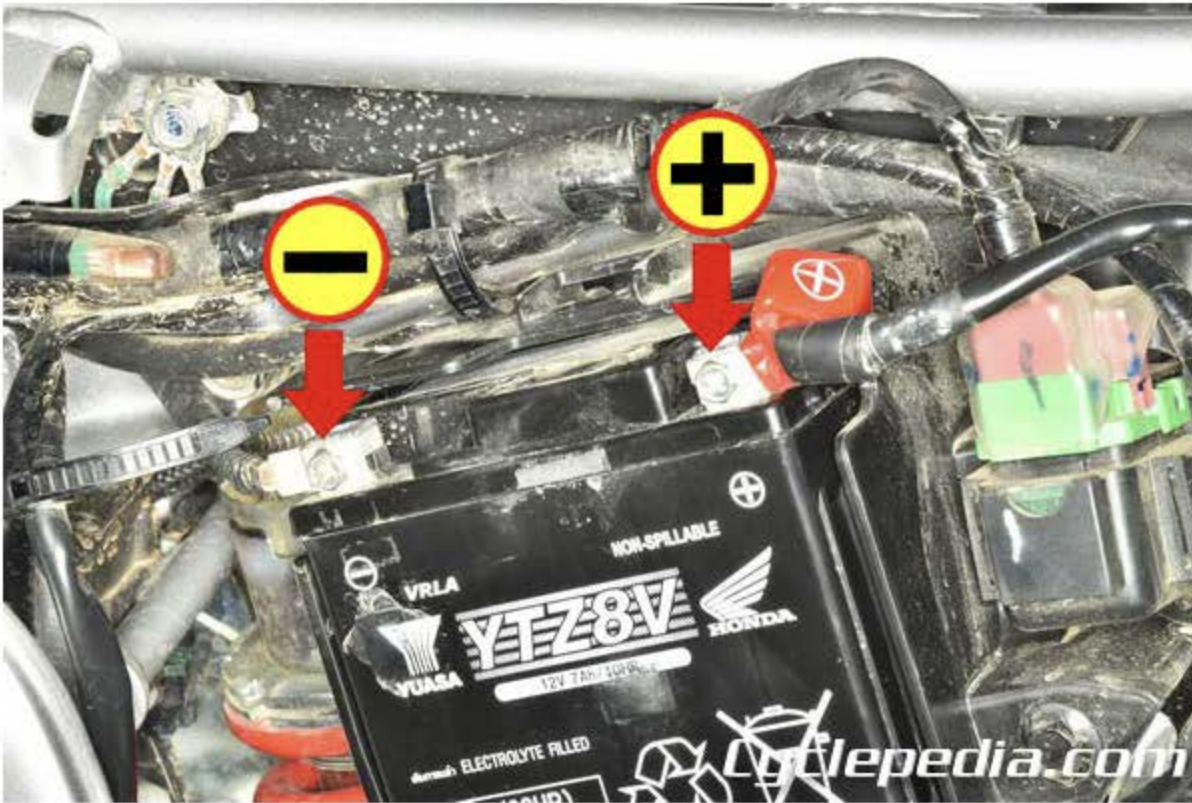
Install the left fuel tank shroud and left side cover. See the [Bodywork](#) <sup>[1]</sup> topic for more information.

## Battery Voltage Inspection

Turn the ignition switch off before disconnecting any charging system components.

Access the battery and detailed earlier in this section and pull back the rubber cover from the positive terminal.





Set the multimeter to read DC voltage and connect the probes to their respective terminals. Set the multimeter to read DC voltage and connect the probes to their respective terminals. The battery should read about **12.8 V** or more with a full charge. Generally speaking, if the battery reads below this 12.4 V it is undercharged. If the battery is charged, wait 30 minutes and check the voltage again.

#### **Voltage (@20°C/68°F)**

**Fully charged:** 12.8 V min

**Needs to be charged:** Below 12.4 V

## **Battery Charging**

Remove the battery as detailed earlier in this section for charging.



Use a suitable battery charger. Connect the charger positive (+) cable to the battery positive (+) terminal. Connect the charger negative (-) cable to the battery negative (-) terminal. Note that the terminal positions are reversed in the accompanying photo because the battery is from another model.

For battery charging, do not exceed the charging current and time specified on the battery or as indicated in the charger user manual. Using excessive current or extending the charging time may damage the battery.

### **Charging Current**

**Normal:** 0.7 A/5 – 10 h

**Quick:** 3.5 A/1 h

Quick charging should only be done in an emergency; slow charging is preferred.

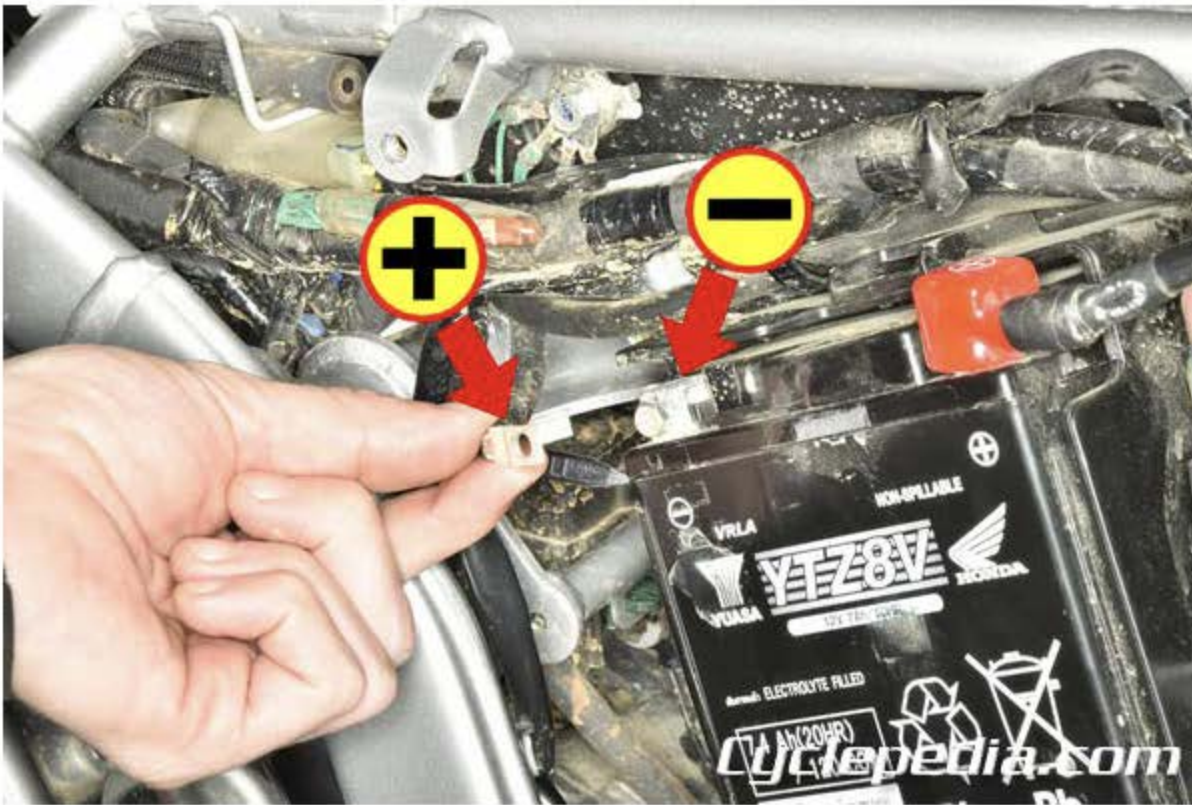
Do not connect the charger leads to the battery while the charger is on. Also, do not remove the charger leads from the battery while the charger is on. Turn the charger off before connecting or disconnecting the charger leads.

When a battery is left for a long term without using, it is subject to discharge. When the motorcycle is not used for more than 1 month (especially during the winter season), recharge the battery once a month at least.

## **Current Leakage Inspection**

Turn the ignition switch off. Do not turn the ignition on while performing the following test.





Remove the negative cable from the battery with a 10 mm socket.

Connect the the positive (+) probe of an ammeter to the negative battery cable and the negative (-) probe to the negative battery terminal. Check for current leakage with the ignition switch OFF. If the current leakage exceeds specification there may be a short circuit. Locate the short circuit and correct the problem.

**Current leakage:** 0.105 mA max.

Note: Set the tester to a high range when measuring current, then bring the range down to a proper level to prevent blowing out a fuse in the tester.

If the current leakage is more than specified, disconnect leads around the chassis one by one to locate the short.

**WARNING: Do not turn the ignition on with the ammeter connected or the voltage spike may damage the meter.**

URLs in this post:

[1] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

[2] Relays: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/relays/>

[3] Starter System: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/starter-system/>

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## - Honda CRF300L Service Manual

### Charging System

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

10 mm socket  
10 mm wrench  
Ratchet  
Meter/DVOM  
Nitrile Gloves  
Safety Glasses

## **System Troubleshooting**

If the battery is damaged or weak inspect the system components as follows.

### **Step 1 Battery Test**

Remove the battery as detailed in the [Battery](#) <sup>[1]</sup> topic.

Load the test battery with a suitable battery tester such as the Micro 404XL Battery Tester or equivalent.

#### **Is the battery in good condition?**

YES – Go to step 2.

No – Faulty battery.

### **Step 2 Current Leakage Inspection**

Reinstall a fully charged battery and perform the current leakage inspection as detailed in the [Battery](#) <sup>[1]</sup> topic.

#### **Is the battery leakage below or 0.105 mA?**

YES – Go to step 4.

No – Go to step 3.

### **Step 3 Current Leakage Inspection (W/out Regulator/Rectifier)**

Disconnect the regulator/rectifier connector 5P black connector as shown in this section and repeat the current leakage inspection as detailed in the [Battery](#) <sup>[1]</sup> topic.

#### **Is the battery leakage now below 0.105 mA?**

YES – Faulty regulator/rectifier.

No – Shorted wire harness or faulty ignition switch.

### **Step 4 Charging Voltage Inspection**

Measure and record the battery voltage, then start the engine and recheck the voltage (see Charging Voltage detailed later in this section).

#### **Is the battery charging voltage above battery voltage but below 15.5 V?**

YES – Faulty battery

No – Go to step 5.



## Step 5 Charging Coil Inspection

Check the alternator charging coil (see Stator Coil, detailed later in this section).

**Is the alternator stator charging coil resistance within 0.1 – 1.0  $\Omega$  (@ 20°C/68°F)?**

YES – Go to step 6.

No – Faulty charging coil.

## Step 6 Regulator/Rectifier System Inspection

Check the voltage and resistance at the regulator/rectifier harness 5P connector, as detailed later in this section.

**Are the measurements correct?**

YES – Faulty regulator/rectifier.

No – Open, short, or loose/poor contacts in harness.

## Battery Voltage

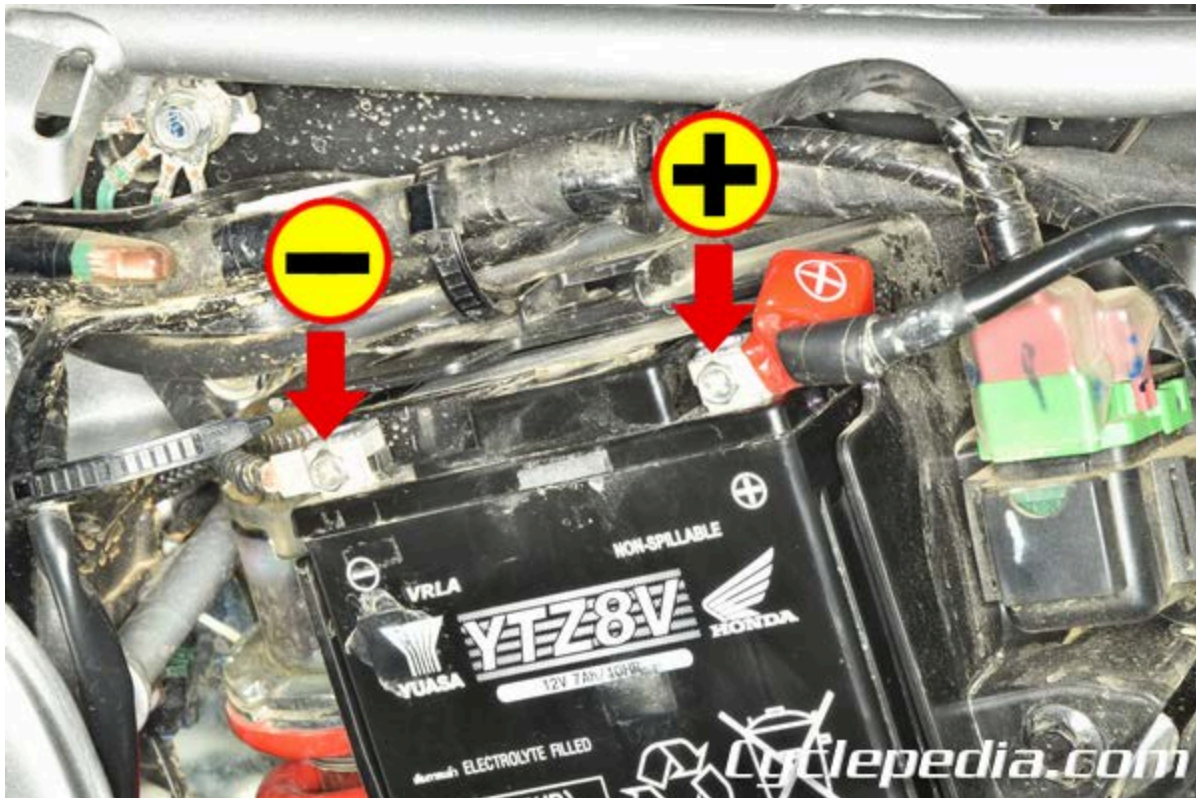
Turn the ignition switch off before disconnecting any charging system components.

See the [Battery](#) <sup>[1]</sup> topic for information on testing the battery voltage and current leakage.

## Charging Voltage

Remove the left side cover and fuel tank shroud for access. See the [Bodywork](#) <sup>[2]</sup> topic for more information.

Note: To check the charging voltage make sure the battery is in good condition.



Set the multimeter to read voltage (DC20V) and connect the probes to their respective terminals: red tester lead to the positive (+) battery terminal, black tester lead to the negative (-) terminal. Connect a tachometer. Start the engine and let it warm up for several minutes. Set the headlight to high beam and

rev the engine to 5,000 rpm, then measure the voltage. The voltage should be within specification. If it is not within specification, check the stator coil as detailed below.

The charging voltage should be less than **15.5 Volts, but greater than the battery voltage**.

If the charging voltage is higher than 15.5 volts, the regulator/rectifier is defective or the regulator/rectifier leads are loose or open.

If the charging voltage is not sufficient and does not rise as the engine speed increases, then the regulator/rectifier is defective or the alternator output is insufficient for the loads. Check the stator coil and regulator/rectifier to determine which part is defective.

## Stator Coil

Remove the left fuel tank shroud for access. See the [Bodywork](#) <sup>[2]</sup> topic for more information.

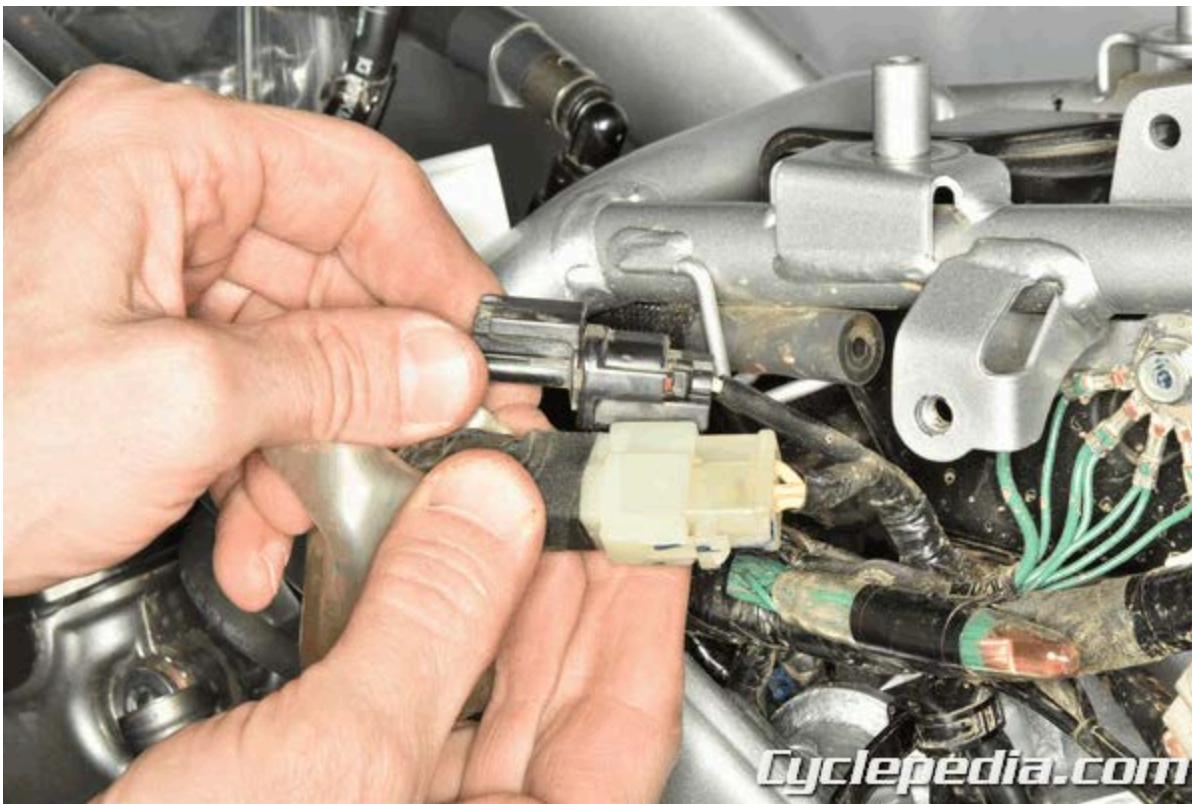


Locate the stator wiring in a opaque rubber boot along the left frame rail as shown.





Pull the rubber boot and harness out from the frame.



Remove the white alternator stator coil connector with the Yellow wires and the black CKP sensor connector.



Unplug the Alternator stator coil connector (white 3P with yellow wires). Inspect the condition of the connector and terminals. Make sure the terminals are free of corrosion and they are making good, consistent contact.

Using the multi-tester set to the resistance scale ( $\Omega \times 1$ ) measure the stator coil resistance between the yellow stator coil wires one by one, yellow wire to yellow wire across all combinations of the three wires. Replace the stator if it is not within specification.

**Charging coil resistance (20°C/68°F):** 0.1 – 1.0  $\Omega$

Check for continuity between the stator coil yellow wires and a ground. There should be no continuity between the stator coil leads and a ground.





If the stator coil fails the tests, see the [Left Side Engine Components](#) <sup>[3]</sup> topic for information on how to replace the stator.



Plug the Alternator connector back into the harness, place them in the protective rubber cover and tuck the cover to the frame rail as shown.

## **Voltage Regulator/Rectifier**

Inspect the regulator/rectifier if the charging voltage is out of specification.




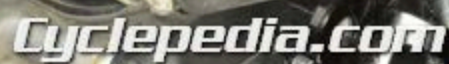


The voltage regulator/rectifier and harness connector are located on the left side of the chassis behind the left fuel tank shroud and coolant reserve tank cover both of which must be removed for access. See the [Bodywork](#) <sup>[2]</sup> topic for more information on either.



The coolant reserve tank must also be removed or repositioned for access to the regulator. See the [Coolant Reserve Tank](#) <sup>[4]</sup> topic for more information.





Hold the regulator nuts from turning using a 10 mm wrench.





And remove the regulator mounting bolts using a 10 mm socket.



Remove the regulator from the bracket.





Unplug the regulator harness connector.



Inspect the condition of the connector and terminals. Make sure the terminals are free of corrosion and they are making good, consistent contact.



Test the regulator/rectifier harness connector terminals as indicated. All tests should be conducted at 20°C/68°F.

Battery charging line: Connect the (+) meter probe to the Red/White wire and (-) to a good ground – should read **battery voltage**

Charging coil line: Connect the meter set to read resistance to each of the stator coil Yellow wires in pairs until all 3 combinations have been tested. Resistance should be about **0.1 – 1.0  $\Omega$  at 20°C/68°F** (see Stator Coil earlier)

Ground line: Connect the meter to the Green wire and a good ground to read continuity – there should be **continuity**

If all other components of the charging system are normal and no loose or corroded connections can be found, replace the regulator/rectifier.

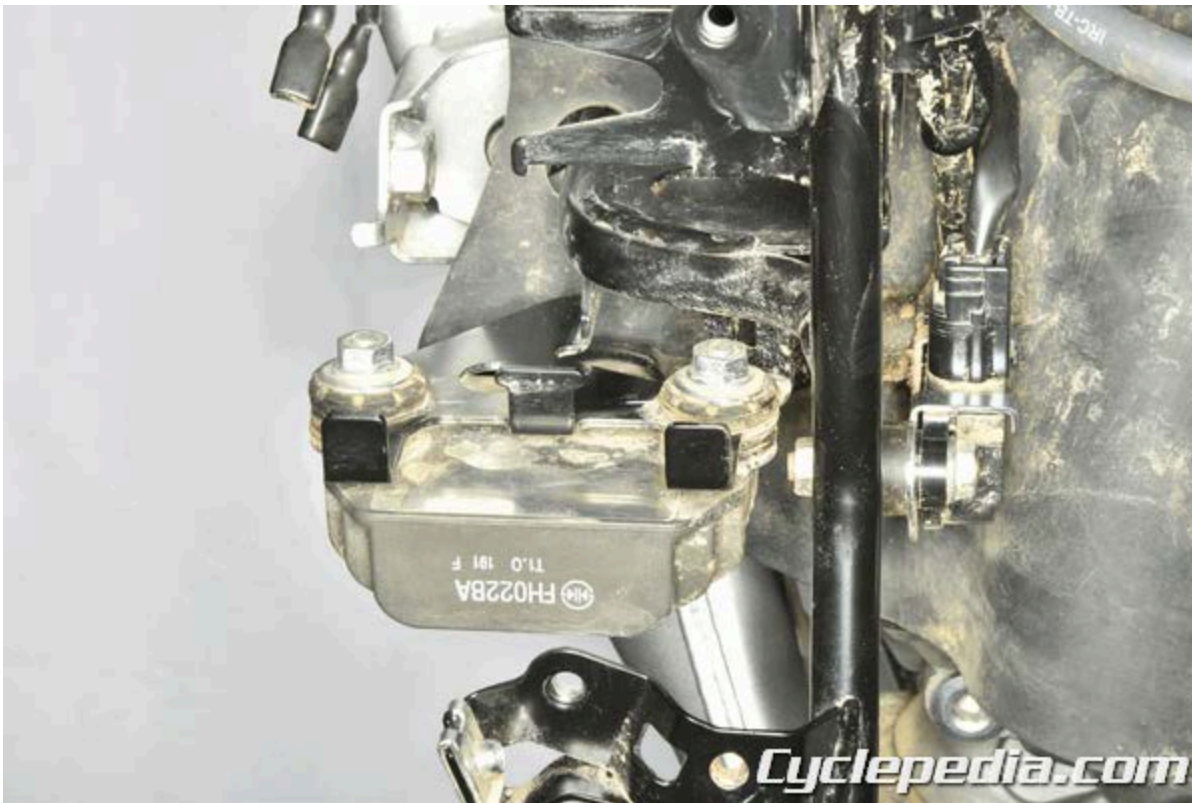




Inspect the conditions of the vibration isolating rubber grommets on the bracket and replace as necessary. To install the regulator start by making sure the collars are in place.



Position the washers over top of the grommets.



Plug in the regulator harness and position it to the bracket. Hold the nuts from turning and tighten the mounting bolts securely.

Install the coolant reserve tank. See the [Coolant Reserve Tank](#) <sup>[4]</sup> topic for more information.

Install the left fuel tank shroud and coolant reserve tank cover. See the [Bodywork](#) <sup>[2]</sup> topic for more information on either.

URLs in this post:

[1] Battery: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/battery/>

[2] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

[3] Left Side Engine Components: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/left-side-engine-components/>

[4] Coolant Reserve Tank: <https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/coolant-reserve-tank/>

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## - Honda CRF300L Service Manual

### Ignition System

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

5/8" Spark Plug Socket  
10 mm Socket  
Ratchet  
Large flat driver  
Meter/DVOM  
Peak Voltage Adapter (PVA)  
Nitrile Gloves  
Safety Glasses

The ignition timing is set at the factory and is not adjustable. The timing only needs to be checked if an electrical component is replaced. To troubleshoot the ignition system, you will need a digital multimeter. Perform the following checks. Before performing any tests make sure the electrical connections are not loose or corroded.

When testing the ignition system make sure the battery is fully charged, the engine has good compression and the main fuse is good. See the [Charging System](#) <sup>[1]</sup> and [Compression Test](#) <sup>[2]</sup> topics for more information on these items.

Check the main fuse (30A) and FI fuse (10 A) and ignition relay before diving into a complete teardown of the ignition system. See the [Fuses](#) <sup>[3]</sup> and [Relays](#) <sup>[4]</sup> topics for more information.

Also, check the function of the gear position switch, the side stand switch, the clutch switch, and the bank angle sensor, all of which will affect the function of the ignition system. See the [Switches](#) <sup>[3]</sup> topic or the [Sensors](#) <sup>[5]</sup> topic for more information.

## **TROUBLESHOOTING**

Inspect the following before diagnosing the system.

Faulty spark plug  
Loose spark plug cap or spark plug wire connection  
Water got into the spark plug cap (Leaking the ignition coil secondary voltage)  
If there is no spark at cylinder, temporarily exchange the ignition coil with a known-good one and perform the spark test. If there is spark, the original ignition coil is faulty.

"Initial voltage" of the ignition primary coil is the battery voltage with the ignition switch turned ON and engine stop switch RUN (The engine is not cranked by the starter motor).

### **No or weak spark at spark plug**

#### **Ignition coil primary voltage**

Unusual condition  
No initial voltage with the ignition switch turned ON and engine stop switch in RUN (Other electrical components are normal).

Probable cause (Check in numerical order)

1. Faulty ignition switch
2. An open circuit in Black/blue wire to the ignition coil (from the relay and bank angle sensor)
3. An open circuit in Black/red, Black/yellow, Black/Orange wires between the engine stop switch, starter relay 10 A fuse, and ignition switch
4. Loose or poor connection of the primary terminal, or an open circuit in the primary coil

5. Faulty ECM (in case when the initial voltage is normal with the ECM connector disconnected).
6. Faulty engine stop switch or ignition relay
1. Incorrect peak voltage adaptor connections (System is normal if measured voltage is over the specifications with reverse connections).
2. Battery is undercharged (Voltage drops largely when the engine is started).
3. No voltage between the Black/blue (+) wire and body ground (-) at the ECM connector or loose ECM connection
4. An open circuit or loose connection in Green wire at the ECM
5. An open circuit or loose connection in Green/red wire between the ignition coil and ECM
6. Faulty side stand switch or gear position switch
7. Faulty CKP sensor (Measure peak voltage)
8. Faulty ECM (in case when above No. 1 through 7 are normal).
1. Incorrect peak voltage adaptor connections
2. Faulty peak voltage adaptor
3. Faulty CKP sensor
4. Faulty ECM (in case when above No. 1 through 3 are normal).
1. The multimeter impedance is too low; below 10 M ohms / DCV.
2. Cranking speed is too slow (Battery is undercharged).
3. The sampling timing of the tester and measured pulse were not synchronized (System is normal if measured voltage is over the standard voltage at least once).
4. Faulty ECM (in case when above No. 1 through 3 are normal).
1. Faulty spark plug or leaking ignition coil secondary current ampere
2. Faulty ignition coil

Initial voltage is normal, but it drops by 2-4 V while cranking the engine.

Initial voltage is normal but there is no peak voltage while cranking the engine.

Initial voltage is normal but peak voltage is lower than the standard value.

Initial and peak voltages are normal but no spark jumps.

### CKP sensor

Unusual condition	Probable cause (Check in numerical order)
	1. The multimeter impedance is too low; below 10 MO/DCV.
	2. Cranking speed is too low. (Battery is undercharged.)
Peak voltage is lower than standard value.	3. The sampling timing of the tester and measured pulse were not synchronized (System is normal if measured voltage is over the standard voltage at least once).
	4. Faulty CKP sensor (in case when above No. 1 through 3 are normal).
No peak voltage	1. Faulty peak voltage adapter
	2. Faulty CKP sensor

## Spark Check

Check the spark plug to see if it is the correct type and gapped properly. If the spark plug is black and fouled, replace it. See the [Spark Plug](#) <sup>[6]</sup> topic for more information.

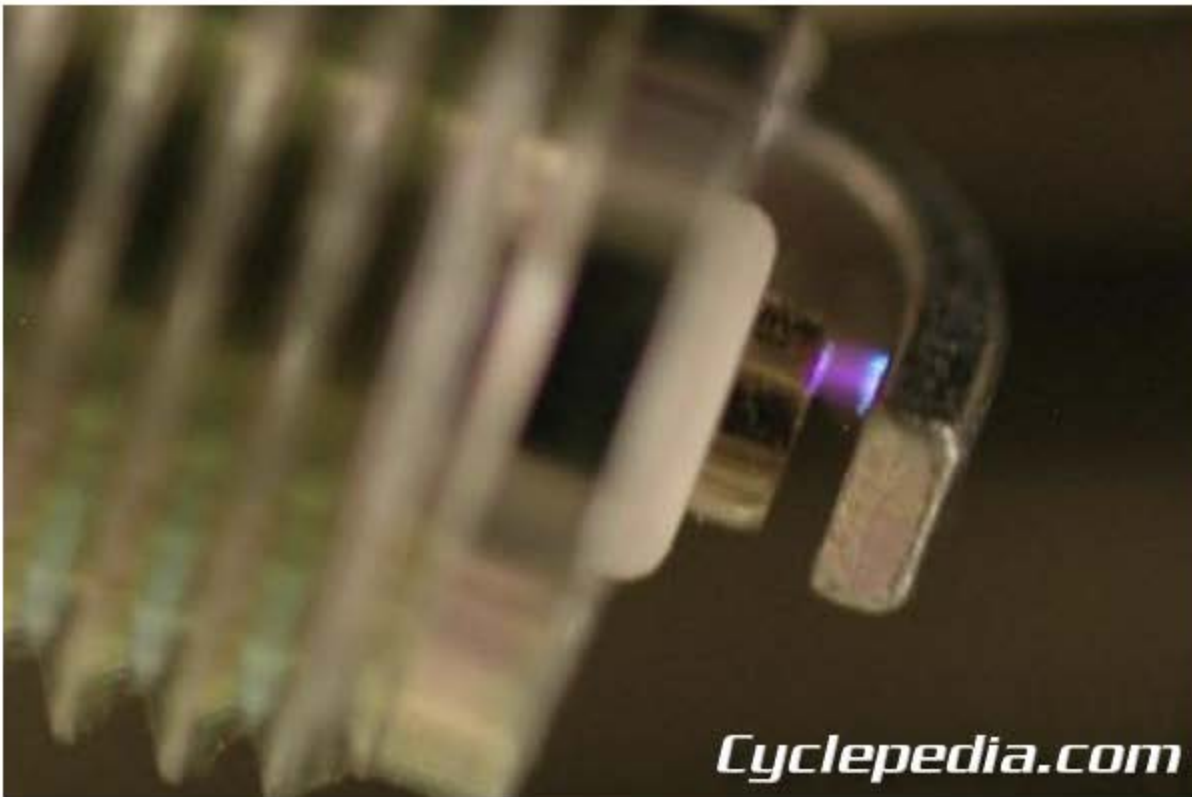




Access and remove the cap from the spark plug. See the [Spark Plug](#) <sup>[6]</sup> topic for more information.



Connect a known good spark plug to the cap and ground the plug to the engine. There should still be a spark plug installed in the cylinder head for compression and safety.



Push the engine start button and check that the plug will spark. If the plug does not spark, try the procedure again with a known good ignition coil.

Caution: Do not touch the spark plug or spark plug wire while cranking or running the engine as this can result in a severe shock.

If using a dynamic spark tester the minimum spark gap should be 6 mm or 0.24 in.

## **Ignition Coil**

### **Primary Peak Voltage**

To test the ignition coil you will need a high quality digital multimeter (of at least 10 M ohm/DCV impedance) and a peak voltage adapter.





Note: In order to test peak voltage, a Peak Voltage Adapter (PVA) must be used. PVAs can be found at most automotive or electrical stores.

Remove the fuel tank for access. See the [Fuel Tank](#) <sup>[7]</sup> topic for more information.

Make sure the cylinder compression is in specification prior to testing the ignition coil peak voltage. See the [Compression Check](#) <sup>[2]</sup> topic for more information.

Place a known good spark plug in the secondary ignition lead and ground it to the frame as detailed in the Spark Check earlier in this section. Also, the transmission should be in neutral.



Set the multimeter to VDC when using the Peak Voltage Adapter or follow the adapter manufacturer's directions if different. With the primary lead still connected to the ignition coil, touch the peak voltage adapter negative meter lead (-) to a good chassis ground (such as the ignition coil mounting bolt). Touch the positive meter lead (+) to the terminal for the Green/Red wire.

Note: The wire on the light green terminal can be slid up slightly, just enough to allow the meter probe to contact the terminal. With the ignition switch on and stop switch set to run, push the engine start button to crank the engine and record the maximum peak voltage.

**WARNING: To prevent shock be sure not to touch the spark plug or the meter probes when cranking the motor.**

**Ignition coil peak voltage:** 100 V minimum

## **Removal**





Access and remove the cap from the spark plug. See the [Spark Plug](#) <sup>[6]</sup> topic for more information.



There is a clip securing control cables to the ignition coil at the secondary wire boot.



Release and remove the clip.



Unplug the two ignition coil connectors.





Remove the two ignition coil mounting bolts using a 10 mm socket.



Remove the ignition coil.



Keep track of the the two u-shaped mounting bolt spacers (there is one installed on each of the coil mounting bosses).

## Installation



Install the ignition coil along with the u-shaped bolt spacers. Install the ignition coil bracket mounting bolts and tighten them securely with a 10 mm socket.





Plug in the ignition coil connectors.



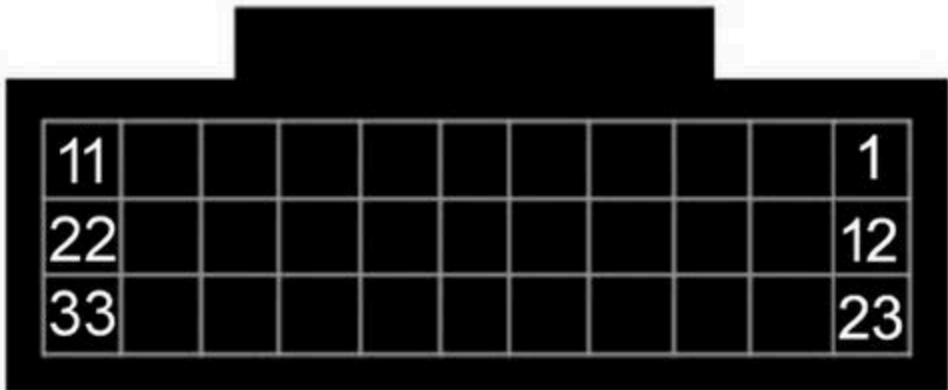
Install the clip to the secondary ignition boot and the control cables.



Reconnect the secondary lead to the spark plug and seat the boot to the cylinder head. See the [Spark Plug](#) <sup>[6]</sup> topic for more information.

**Crankshaft Position Sensor (CKP)**

With the ignition switch in the OFF position, access and unplug the [ECM](#) <sup>[8]</sup> so the test can be conducted at the harness connector.



HARNESS SIDE



Set the multimeter to VDC when using the Peak Voltage Adaptor or follow the directions if different. The wiring harness side of the connector is the side where the testing will occur. Touch the peak voltage adapter positive meter lead to the Green wire terminal (ECM harness terminal 2) and the negative meter lead to the Blue/Yellow wire terminal (ECM harness terminal 12).

**Special Tool – Test probe: 07ZAJ-RDJA110**

Make sure the transmission is in neutral, and the stop switch is set to run, then turn the ignition switch on. Push the starter button to crank the engine over and record the maximum peak voltage. Compare your reading with the specification. If your reading is not within specification, recheck as shown below.

**CKP sensor peak voltage: 0.7 V minimum**

If the crankshaft position sensor is out of specification try testing it at another location (the CKP connector). Doing this will show if the problem is in the harness between the two connector or in the sensor and lead.

Remove the left fuel tank shroud for access. See the [Bodywork](#) <sup>[9]</sup> topic for more information.



Locate the stator wiring in a opaque rubber boot along the left frame rail as shown.



Pull the rubber boot and harness out from the frame.



Remove the white alternator stator coil connector with the Yellow wires and the black CKP sensor connector.





Unplug the CKP sensor connector. Look for the Blue/yellow and White/yellow wires.

Test on the CKP side of the harness. Touch the peak voltage adapter positive meter lead (+) to the White/yellow wire terminal and the negative meter lead (-) to the Blue/yellow wire terminal. Turn the ignition switch on (transmission still in neutral/stop switch still set to run). Push the starter button to crank the engine over and record the maximum peak voltage. Compare your reading with the specification.

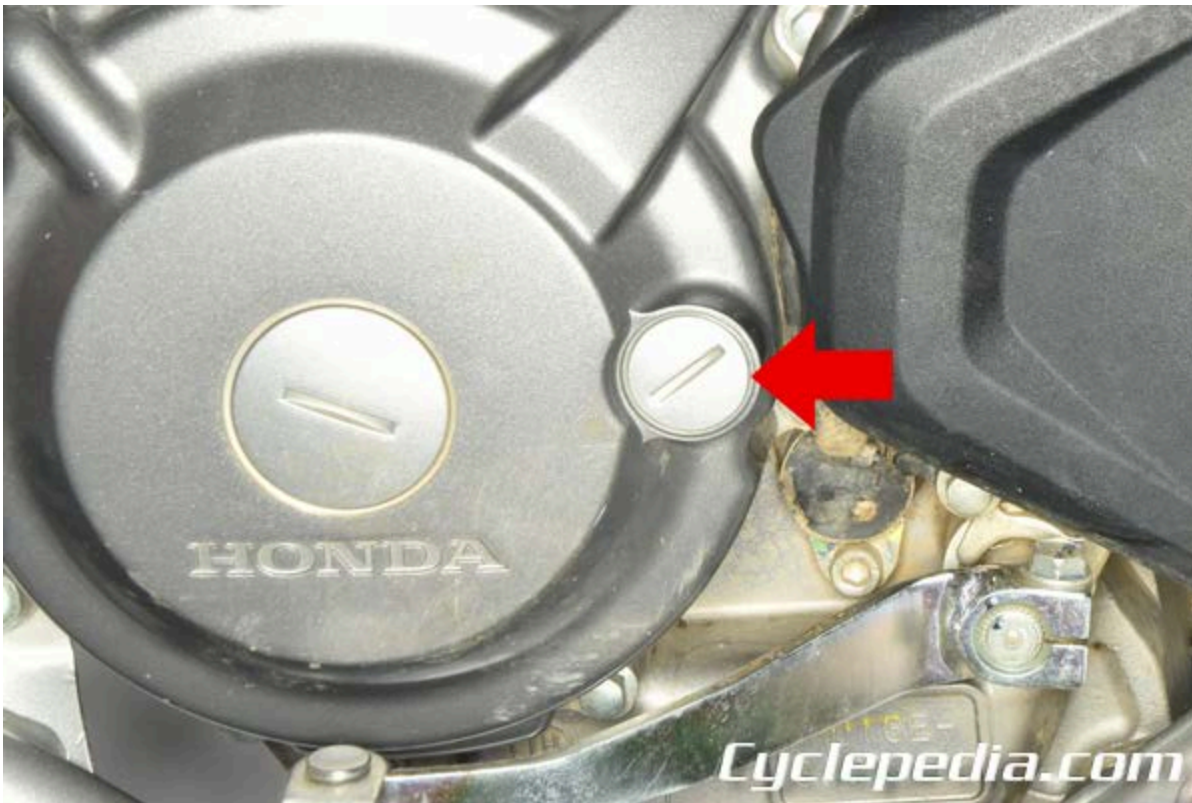
**CKP sensor peak voltage:** 0.7 V minimum

If the second check of the crank position sensor is within specification but the first is not there is a problem in the wiring harness.

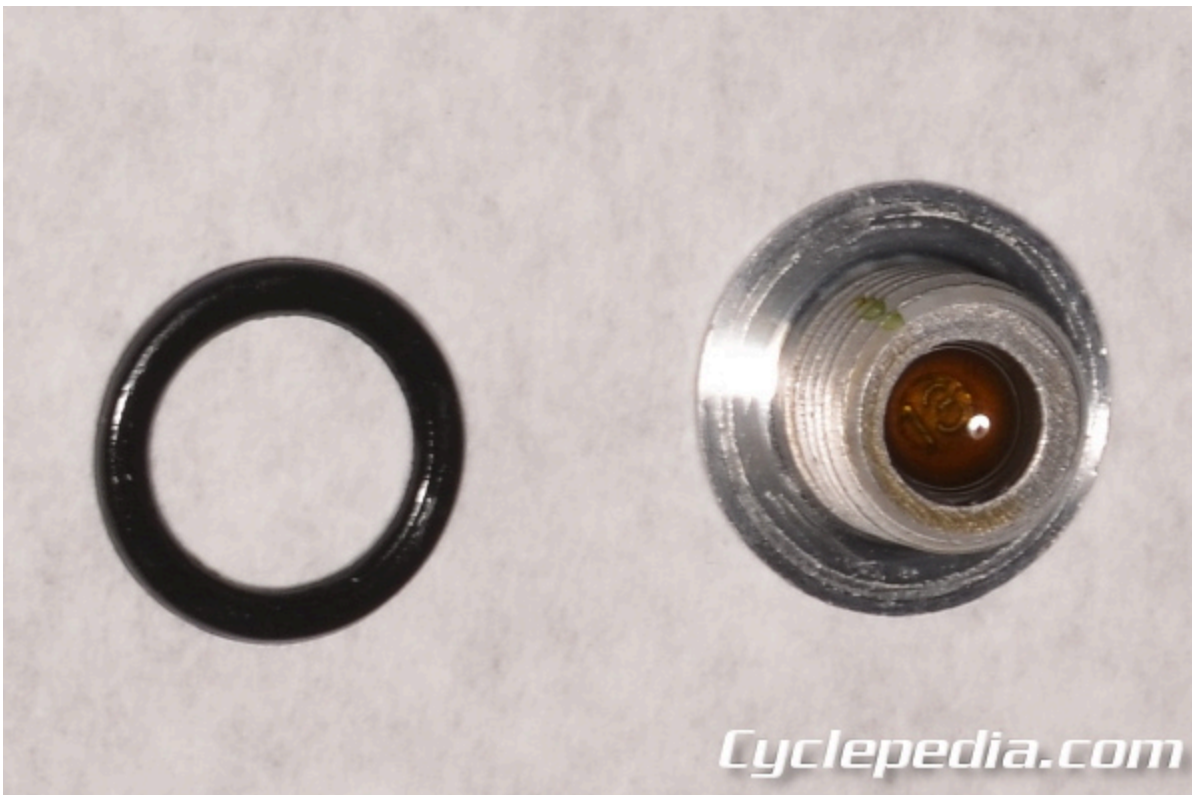
If the CKP is found to be faulty, it must be replaced along with the stator as they are one assembly. See the [Left Side Engine Components](#) <sup>[10]</sup> topic for more information.

## Ignition Timing

Place the transmission in neutral, then start the engine, and let it warm up to operating temperature. Stop the engine.



Remove the timing hole cap from the left crank case cover with a large flat blade screwdriver.



Inspect the O-ring for damage and deterioration.





With the engine idling between **1,350 and 1,550 rpm** the timing light should display an “F” mark that lines up with the index in the timing hole.



Coat the new timing hole cap O-ring with fresh engine oil and apply a light coating of oil to the cap threads. Install the cap and new O-ring. Tighten the cap to specification with a large flat blade screwdriver.

**Timing hole cap (oil threads):** 6.0 N-m (0.6 kgf-m, 4.4 ft-lb)

URLs in this post:

- [1] Charging System: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/charging-system/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/charging-system/)
- [2] Compression Test: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/compression-check/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/compression-check/)
- [3] Fuses: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/fuses/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/fuses/)
- [4] Relays: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/relays/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/relays/)
- [5] Sensors: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/sensors/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/sensors/)
- [6] Spark Plug: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/spark-plug/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/spark-plug/)
- [7] Fuel Tank: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/external-components/fuel-tank/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/external-components/fuel-tank/)
- [8] ECM: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/ecu/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/ecu/)
- [9] Bodywork: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/)
- [10] Left Side Engine Components: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/engine/left-side-engine-components/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/engine/left-side-engine-components/)

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## - Honda CRF300L Service Manual

### Starter System

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### Suggested Tools and Supplies

4 mm Hex Driver  
Ratchet  
DVOM/Multi-meter  
12 Volt Battery and Jumper Wires  
Nitrile Gloves  
Safety Glasses

## Troubleshooting

Check the following bullets in order for the observed symptom:

### Starter motor isn't turning

Loose or poor contact on starter system connectors or terminals.  
Inspect the fuses (Main 30A, Starter Relay 10A). See the [Fuses](#) <sup>[1]</sup> topic for more information.  
Inspect the battery See the [Battery](#) <sup>[2]</sup> topic for more information.  
Inspect the starter relay. Listen for a clicking sound and check continuity.  
Inspect the starter motor operation.  
Inspect the engine stop switch. See the [Switches](#) <sup>[3]</sup> topic for more information.  
Loose connection, open, or short in starter motor cable.  
Inspect the starter switch. See the [Switches](#) <sup>[3]</sup> topic for more information.  
Open in the starter relay input voltage. See this topic.  
Open or short circuit in starter relay switch power circuit. See this topic.

**The starter motor turns when the transmission is in neutral, but does not turn with the transmission in gear, with the clutch lever pulled in and the side stand up**

Loose or poor contact on starter system connectors or terminals.  
Inspect the clutch switch. See the [Switches](#) <sup>[3]</sup> topic for more information.  
Inspect the side stand switch. See the [Switches](#) <sup>[3]</sup> topic for more information.  
**The starter motor turns only when the transmission is in any gear with the clutch lever pulled in and the side stand up. (Motor does not turn when the transmission is in neutral with lever released and stand down)**

Loose or poor contact on starter system connectors or terminals.  
Inspect the neutral diode. See the [Fuses](#) <sup>[1]</sup> topic for more information.  
Inspect the neutral switch. See the [Switches](#) <sup>[3]</sup> topic for more information.

### Starter motor turns slowly

Low battery voltage  
Poorly connected battery terminal cable  
Poorly connected starter motor cable  
Faulty starter motor  
Poorly connected battery ground cable

### Starter motor turns, but engine does not turn

Starter motor is running backwards – Case assembled improperly or terminals connected improperly  
Faulty starter clutch  
Damaged or faulty starter idle gear and/or reduction gear  
**Starter relay switch "Clicks", but engine does not turn over**

Crankshaft does not turn due to engine problems

## Starter Relay



The starter relay located immediately behind the battery. Remove the left side cover to access the starter relay. See the [Bodywork](#) <sup>[4]</sup> topic for more information.

### Operation Check

Make sure the transmission is in neutral, turn the ignition switch to the ON position and set the engine stop switch to RUN.





Position your self so you can listen to the starter relay and hit the engine start button. The starter relay should emit clicks when the button is pressed. If you do not hear the clicks inspect the relay.

Note: The click can also be felt. If you are having trouble hearing the relay, place one hand on the relay body (not touching the contacts) and feel for the click.

### **Input Voltage Check**

If you don't hear a click, then check whether or not voltage is making it to the relay to activate it.

Set a multimeter to read voltage (DC).



Unplug the relay 4-pin connector.

Make sure the transmission is in neutral, turn the ignition switch to the ON position and set the engine stop switch to RUN.

Touch the positive probe (+) to the Yellow/red wire terminal and the negative probe (-) to a good ground. When the starter button is pressed battery voltage should display on the multimeter.

CONNECTION: Yellow/red (+) to Ground (-)

STANDARD: Battery voltage

Battery voltage should be present, but only when the starter switch is pushed with the ignition ON, and the engine stop switch set to RUN.

If battery voltage is not present, check the following:

Ignition switch

Starter switch relay fuse 10A

Engine stop switch

Starter switch

If voltage is present but the relay isn't operating, check the ground line.

## Ground Line Check

Start with the starter relay red 4P connector still unplugged from the voltage check.

Set the multimeter to read ohms of resistance to check for continuity. Connect the meter to the harness side of the relay connector and check for continuity between the terminal for the Green/red wire and a good ground (the negative battery terminal is right there and you can't get a better ground).

CONNECTION: Green/red to Ground

If there is continuity when the transmission is in neutral or when the clutch is disengaged and the side stand is retracted, the ground circuit of the relay coil is normal. In neutral, there should be a slight resistance due to the diode.

If there is not continuity to ground check the following:

- Neutral diode
- Clutch switch
- Gear position switch
- Side stand switch

## Continuity Check



Unplug the relay 4P connector.





Pull back the rubber boot to expose the large terminals (for the starter motor and battery positive cable connections).



Remove the starter relay terminal bolts using a 4 mm hex driver, then remove the relay and holder from the stay.



Set the multimeter to ohms of resistance. Connect the multimeter probes to the starter motor and battery terminals. Touch the positive lead from a charged 12V battery to the relay terminal that matches up with the Yellow/red wire. Touch the negative lead from the battery to the Green/red wire terminal on the relay. There should be continuity between the starter motor and battery terminals.

If there is no continuity, replace the relay with a new one and recheck operation.

If the starter does not operate when the relay and relay circuits are good, check for a short or open in the starter motor cable. If the cable is not at fault and power is reaching the starter, the motor itself is suspect and should be replaced.

During installation tighten the switch terminal screws securely.

## **Starter Motor Operation Inspection**





Prepare the vehicle so the starter motor can be turned by a voltage jump. Jump 12 Volts from the battery's positive terminal to the starter motor terminal. The starter motor should turn. If the starter motor doesn't turn, and there isn't a mechanical fault that is preventing the engine from turning over, the starter motor is faulty and should be removed and inspected further. See the [Starter Motor](#)<sup>[5]</sup> topic for more information.

URLs in this post:

[1] Fuses: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/fuses/>

[2] Battery: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/battery/>

[3] Switches: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/switches/>

[4] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

[5] Starter Motor: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/starter-motor/>

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## - Honda CRF300L Service Manual

### Starter Motor

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### Suggested Tools and Supplies

10 mm Socket  
7 mm Socket  
Ratchet  
Shop Towel  
Electrical Contact Cleaner  
Nitrile Gloves  
Safety Glasses

### Removal

Turn the ignition switch OFF and Disconnect the negative battery lead before removing the starter motor. See the [Battery](#) <sup>[1]</sup> topic for more information.

Remove or perform the following for access:

[Exhaust System](#) <sup>[2]</sup> (header pipe)

[Clutch Cable Adjustment](#) <sup>[3]</sup> (clutch cable guide)

[Emissions](#) <sup>[4]</sup> (EVAP canister and purge solenoid assembly)

Remove the camshaft chain tensioner. See the [Camshaft](#) <sup>[5]</sup> and the [Piston and Cylinder](#) <sup>[6]</sup> topics for more information.



Pull back the black rubber cover. Remove the starter cable mounting bolt using a 10 mm socket. Be careful not to turn the starter motor terminal post.





Carefully remove the cable from the terminal.



Remove the ground cable bolt using a 10 mm socket.





Remove the other starter mounting bolt using a 10 mm socket, then carefully pull out the starter motor.



Remove the O-ring from the end of the starter motor that enters the crankcase. Discard the O-ring. Try to turn the starter motor armature shaft with your hand. It should turn with a small amount of resistance. If it doesn't turn at all or is very hard to turn, the starter motor will need to be replaced or rebuilt.

## Disassembly





Remove the two bolts holding the starter motor together using a 7 mm socket.



Slide off the front cover.



Remove the starter motor case from the armature. The starter motor case O-rings should be replaced anytime the case is removed.

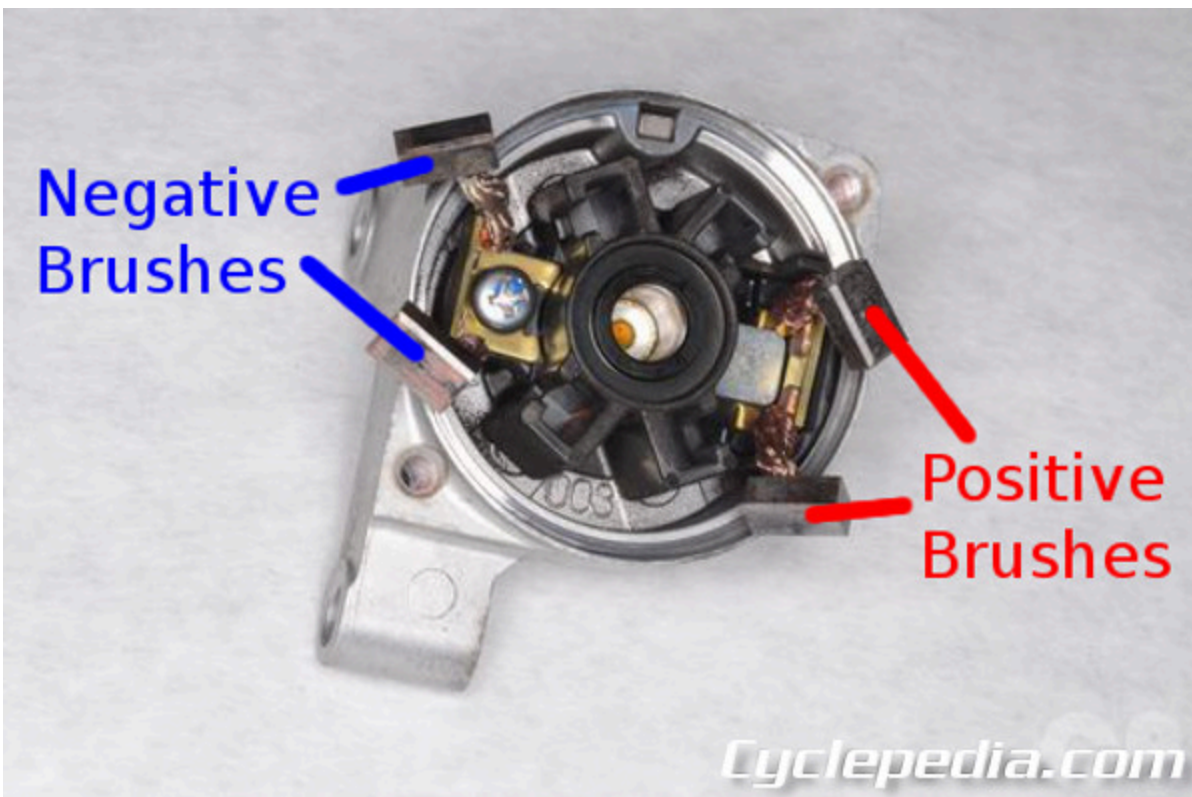


Separate the armature from the rear cover.





Remove the brushes and springs from the brush holders.



The starter motor has negative and positive brushes.



Remove the negative brush mounting screw with a Phillips screwdriver. Remove the negative brushes from the rear cover.



Loosen the starter motor terminal nut with a 10 mm socket. Remove the nut and washer from the starter motor terminal.

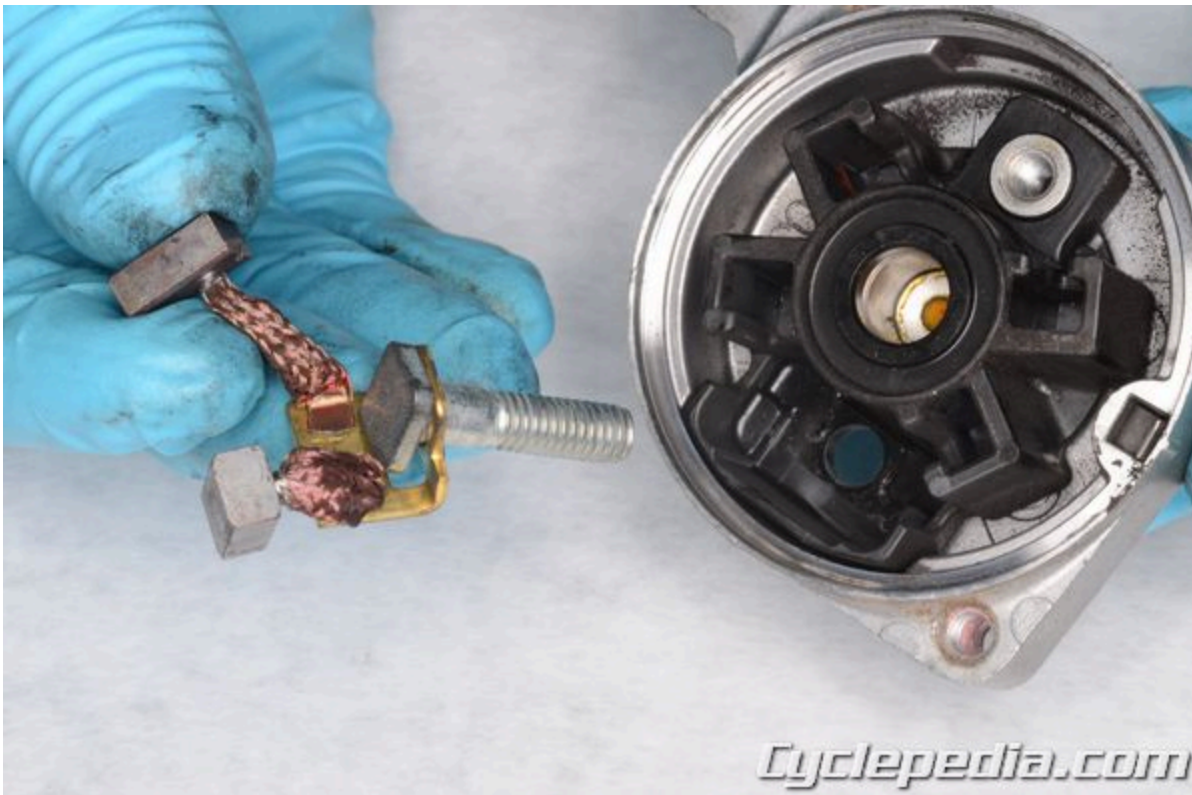




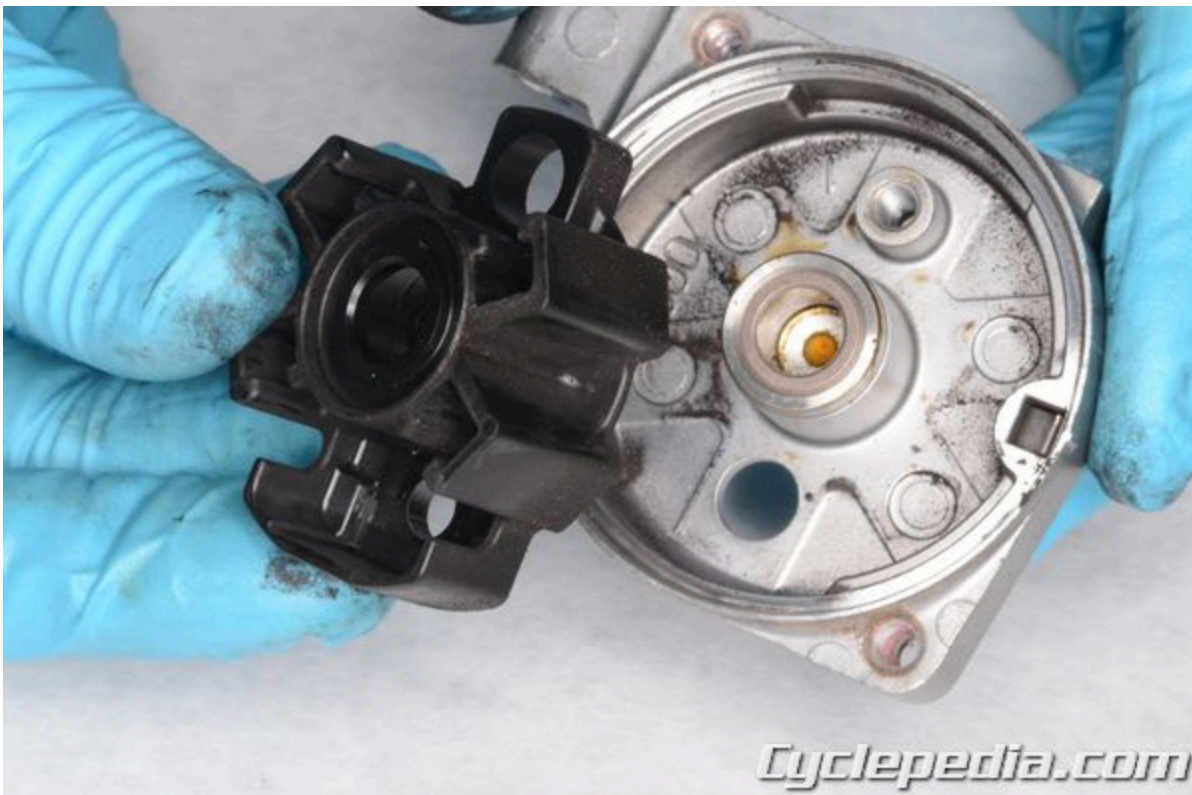
Remove the terminal stopper and insulator.



Remove the terminal O-ring.



Remove the positive brushes and terminal bolt.



Remove the brush holder from the rear cover.

## Inspection

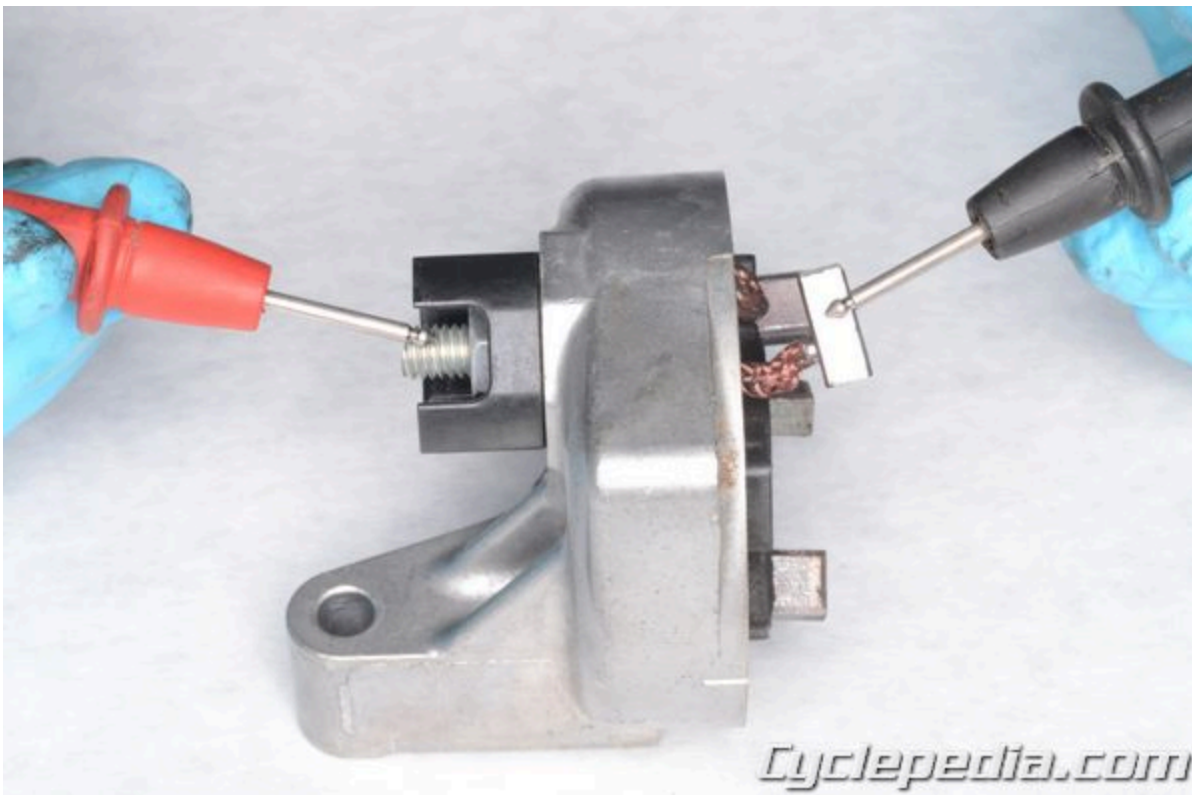




Inspect the starter motor bearing and seal. Replace the parts as needed if they are available, otherwise replace the starter motor as an assembly.

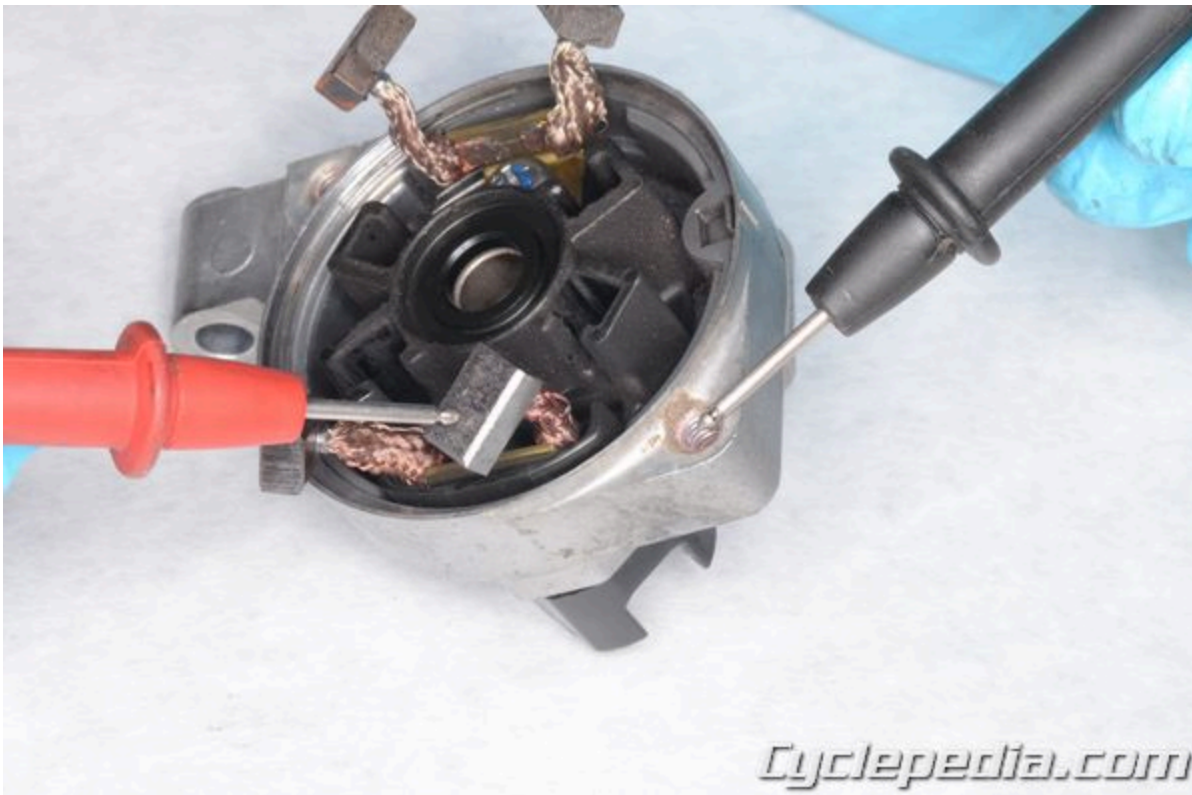


Inspect the starter motor bushing for wear and damage and replace it as needed.

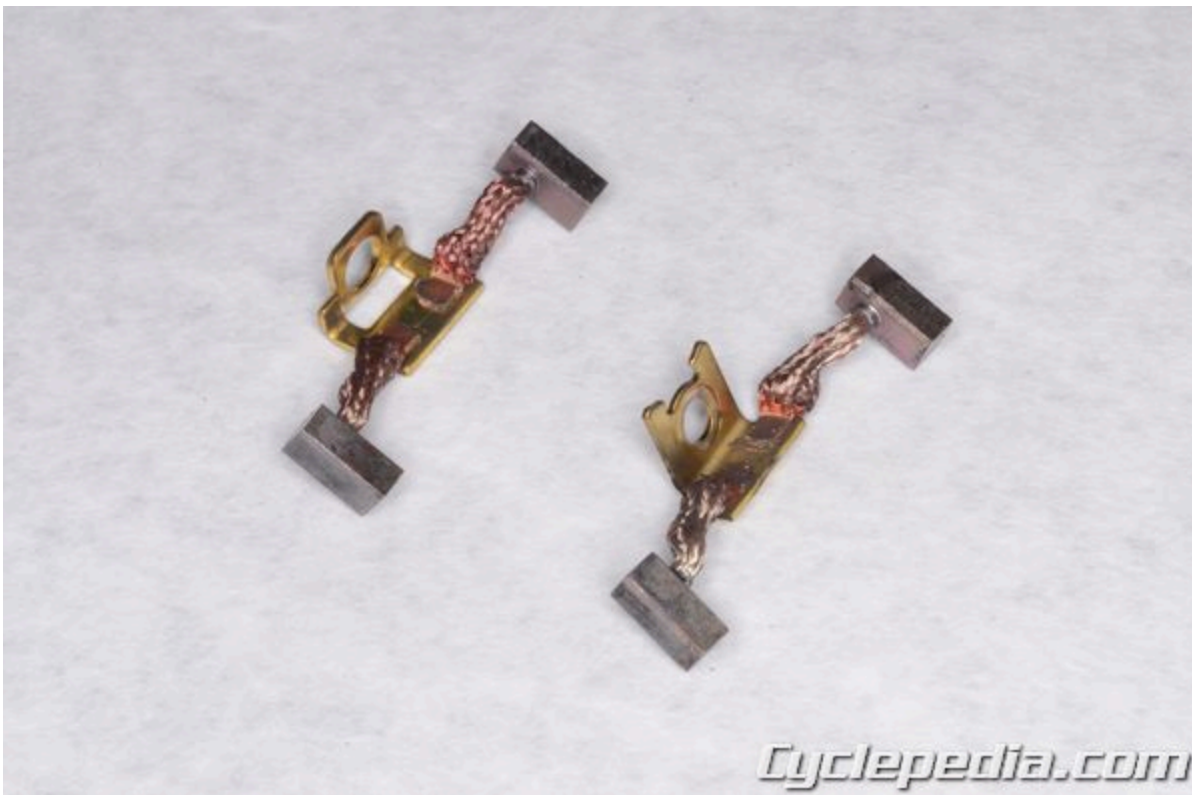


Set the multimeter to ohms of resistance. Check for continuity between the positive brushes and the starter motor terminal. There should be continuity.





Check for continuity between the positive brushes and the rear cover. Also, check for continuity between the positive brushes and the negative brushes. There should be no continuity in both cases.

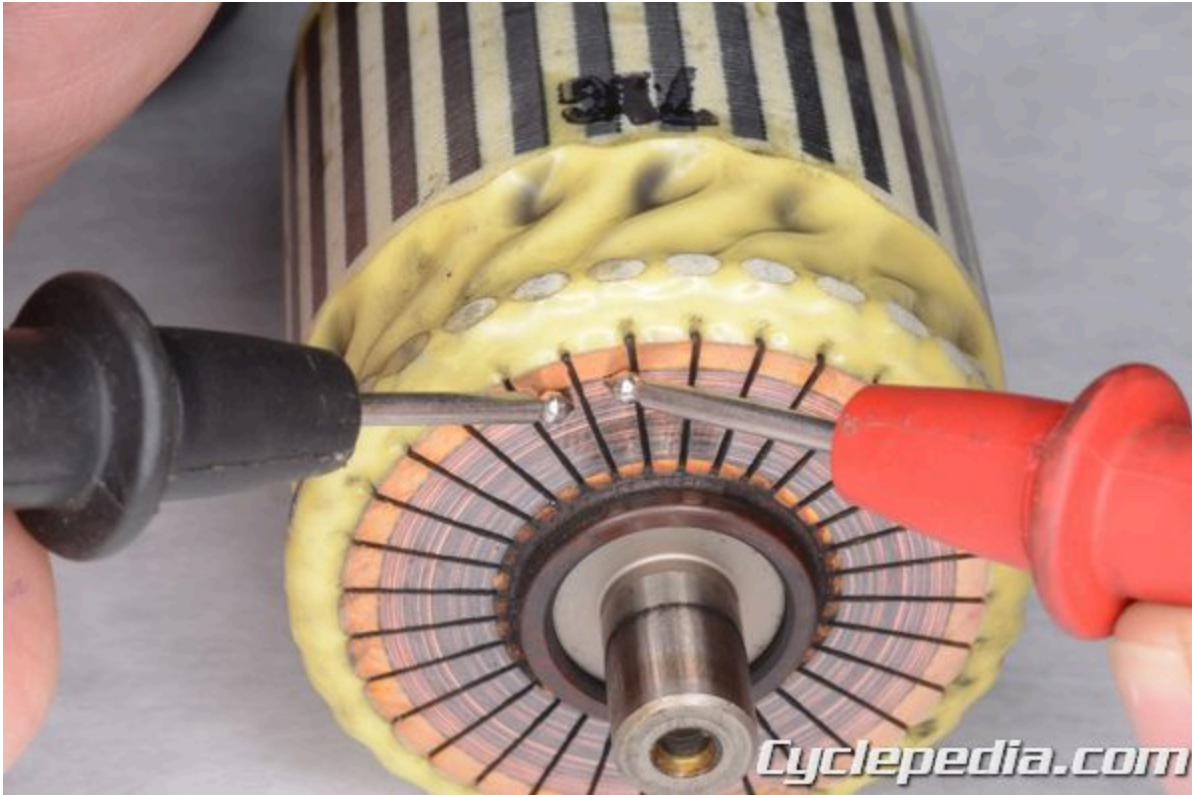


Measure the length of the brushes lengthwise. Replace the brushes if they are below the service limit.

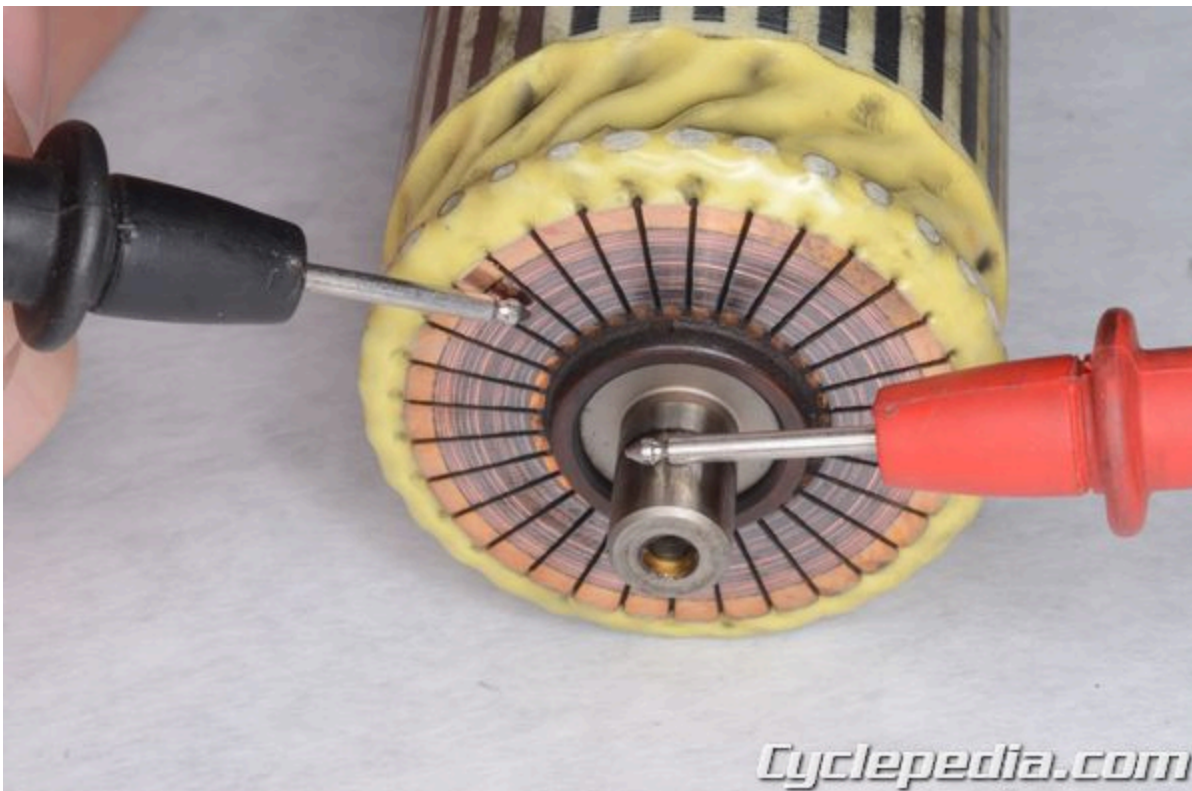
**Starter motor brush length:** 11.8-12.3 mm (0.46-0.48 in)\*

**Service Limit:** 6.5 mm (0.26 in)\*

\*Note: Specification is from earlier model literature, however the part numbers on the starters and brushes are the same so the specification should be relevant.



Inspect the armature for damage and signs of wear and discoloration. Using a digital multimeter set to ohms of resistance, touch one meter lead to any one commutator strip and touch the other meter lead to all of the other commutator strips one by one. Polarity of the meter leads does not matter. There should be continuity for all of the readings, if any readings shows no continuity the armature must be replaced.





Using a digital multimeter set to ohms of resistance, touch one meter lead to any one commutator strip and touch the other meter lead to the steel shaft of the armature. Polarity of the meter leads doesn't matter, and you only need to check one of the commutator strips. There should be no continuity, if there is the armature must be replaced.

## Assembly



Set the brush holder into the rear cover. Install the positive brushes and terminal bolt.



Install a new terminal O-ring. Coat the O-ring in fresh engine oil.



Install the terminal stopper and insulator.



Install the nut and washer.





Tighten the nut securely with a 10 mm socket.



Install the negative brushes to the rear cover. Tighten the negative brush mounting screw securely with a Phillips screwdriver.

**Negative brush screw:** 3.7 N-m (0.4 kgf-m, 2.7 ft-lb)



Set the armature into the bushing in the rear cover.

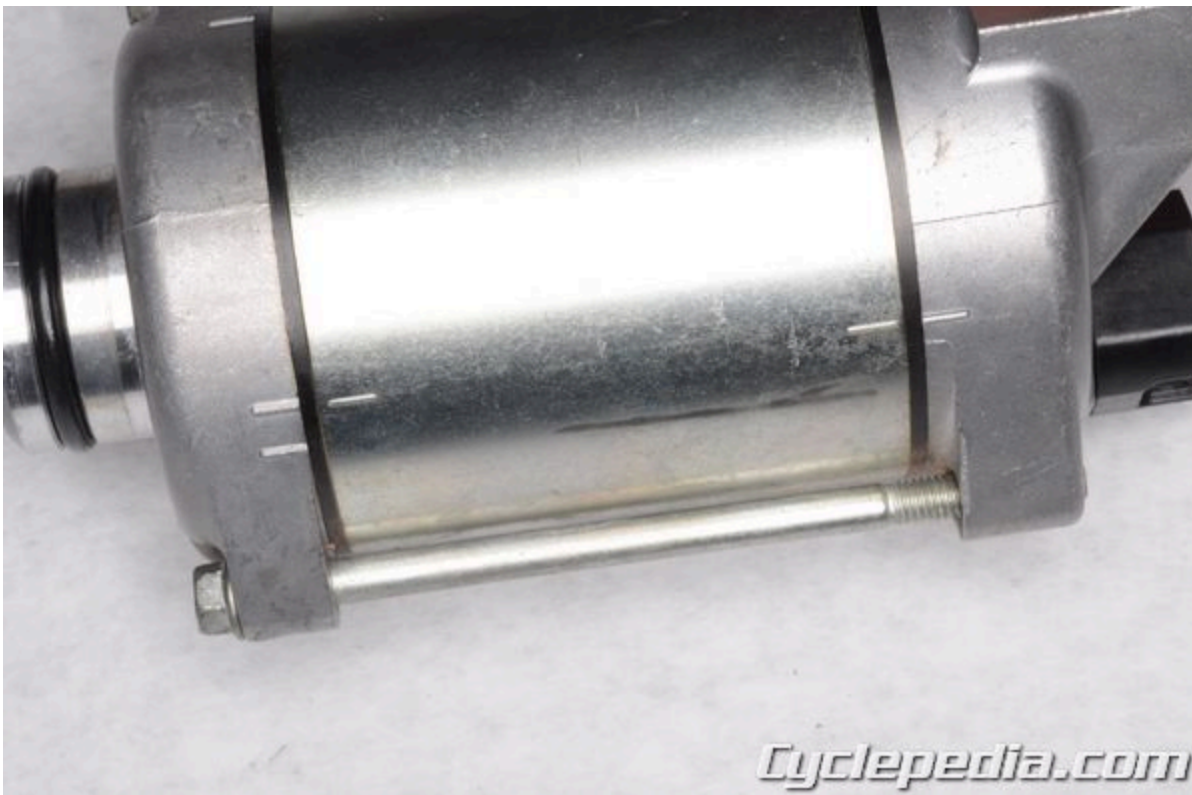


Install new O-rings onto the starter motor case.





Install the starter motor case and front cover.



Line up the starter motor case with the end covers as shown.



Install the two new long starter motor bolts. Tighten the bolts securely with a 7 mm socket. After assembly, turn the armature shaft by hand; it should turn with a little resistance. If it doesn't turn at all or is difficult to turn, take the starter motor apart and go through the assembly procedures again.

**Starter motor assembly bolt:** 4.9 N-m (0.5 kgf-m, 3.6 ft-lb)

## Installation



Coat the new starter motor O-ring in fresh oil and install it onto the end of the starter motor.





Fit the front of the starter into the engine case. Insert both of the mounting bolts, making sure the ground wire is attached to one of them, and tighten them securely. Fit the starter cable to the starter motor and thread on the nut. Tighten the nut securely with a 10 mm socket.



Install the rubber cover.

Install or perform the following:

Cam chain tensioner lifter (Piston and Cylinder <sup>[6]</sup> and Camshaft <sup>[5]</sup>)

Emissions <sup>[4]</sup> (EVAP canister and purge solenoid assembly)

Clutch Cable Adjustment <sup>[3]</sup> (clutch cable guide)

Exhaust System <sup>[2]</sup> (header pipe)

Battery <sup>[1]</sup> (negative battery cable )

URLs in this post:

[1] Battery: **<https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/battery/>**

[2] Exhaust System: **<https://www.cyclepedia.com/manuals/online/cpp-323/external-components/exhaust-system/>**

[3] Clutch Cable Adjustment: **<https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/clutch-adjustment/>**

[4] Emissions: **<https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/emissions/>**

[5] Camshaft: **<https://www.cyclepedia.com/manuals/online/cpp-323/engine/camshaft-and-rocker-arms/>**

[6] Piston and Cylinder: **<https://www.cyclepedia.com/manuals/online/cpp-323/engine/piston-and-cylinder/>**

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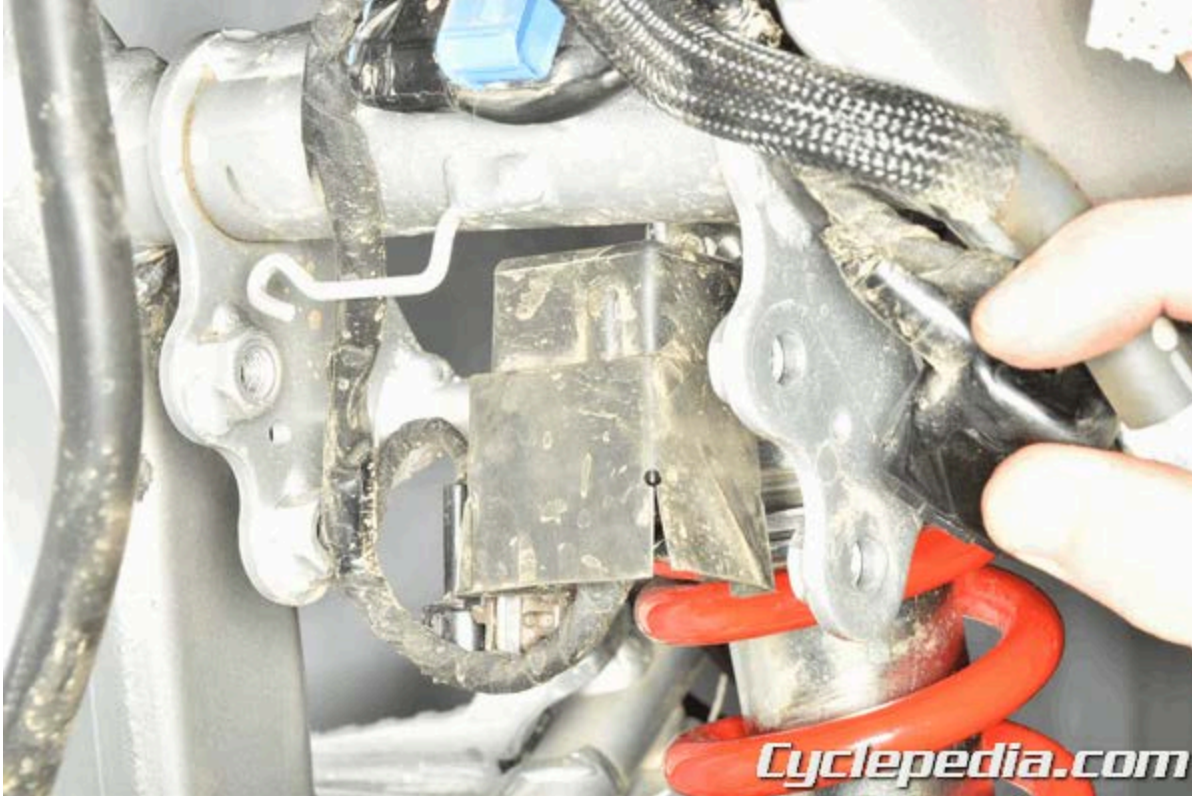
## Relays

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

### Suggested Tools and Supplies

12-volt Battery  
Jumper Wires  
Meter/DVOM  
Nitrile Gloves  
Safety Glasses

## Fan Control and Ignition Relays



The fan control and ignition relays are found on a stay just in front of the upper shock mount.

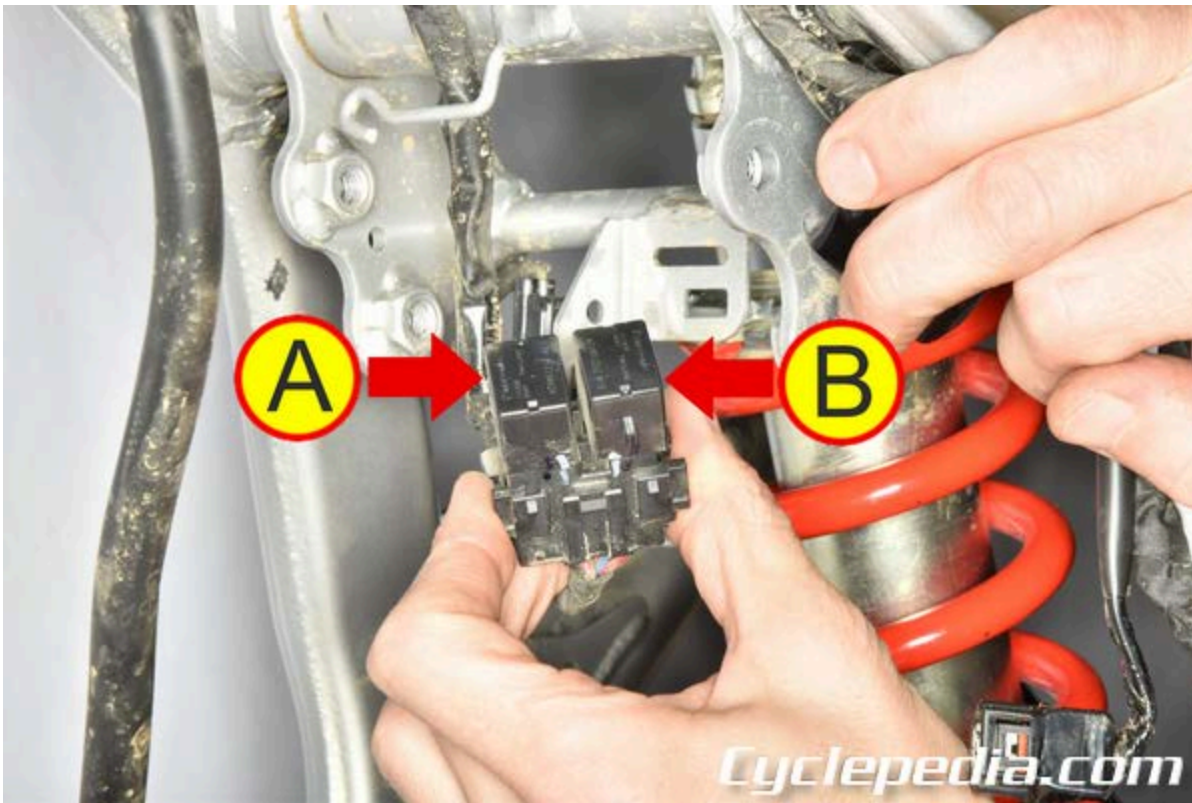


Free the relay holder from the stay and pull it outward slightly for access.

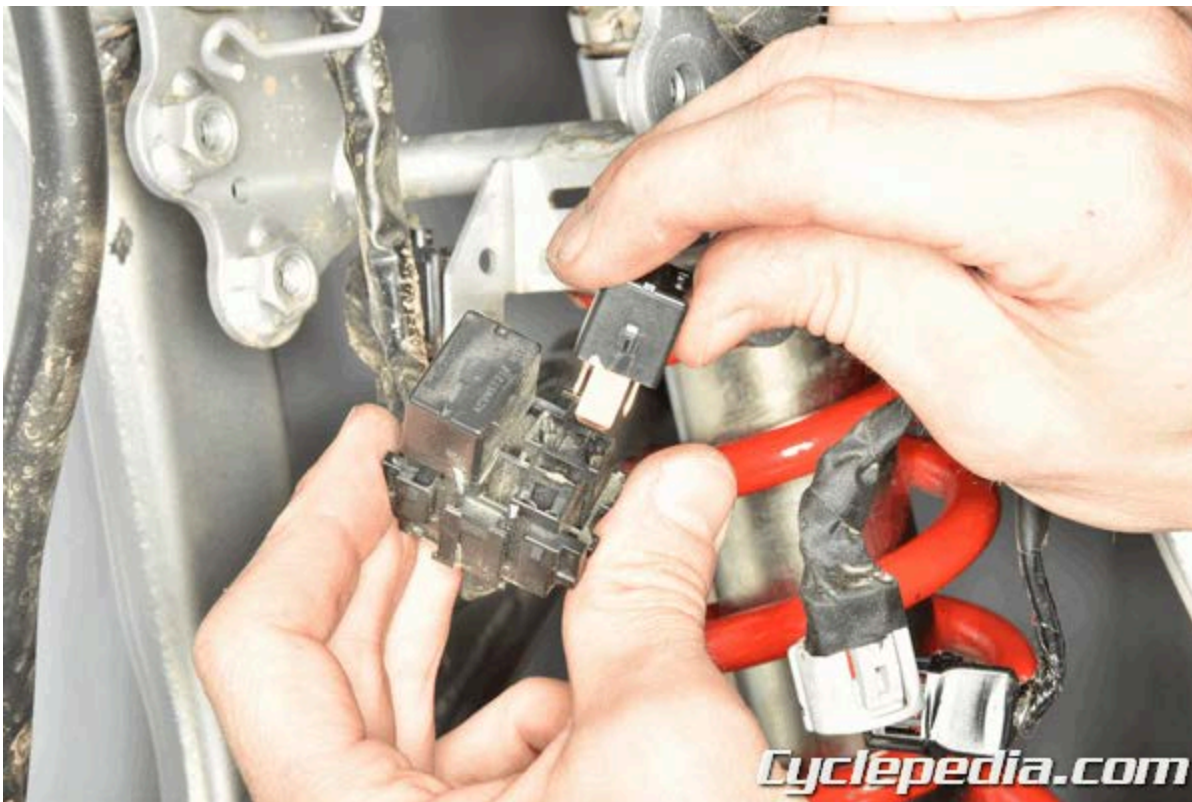


Remove the rubber cover.





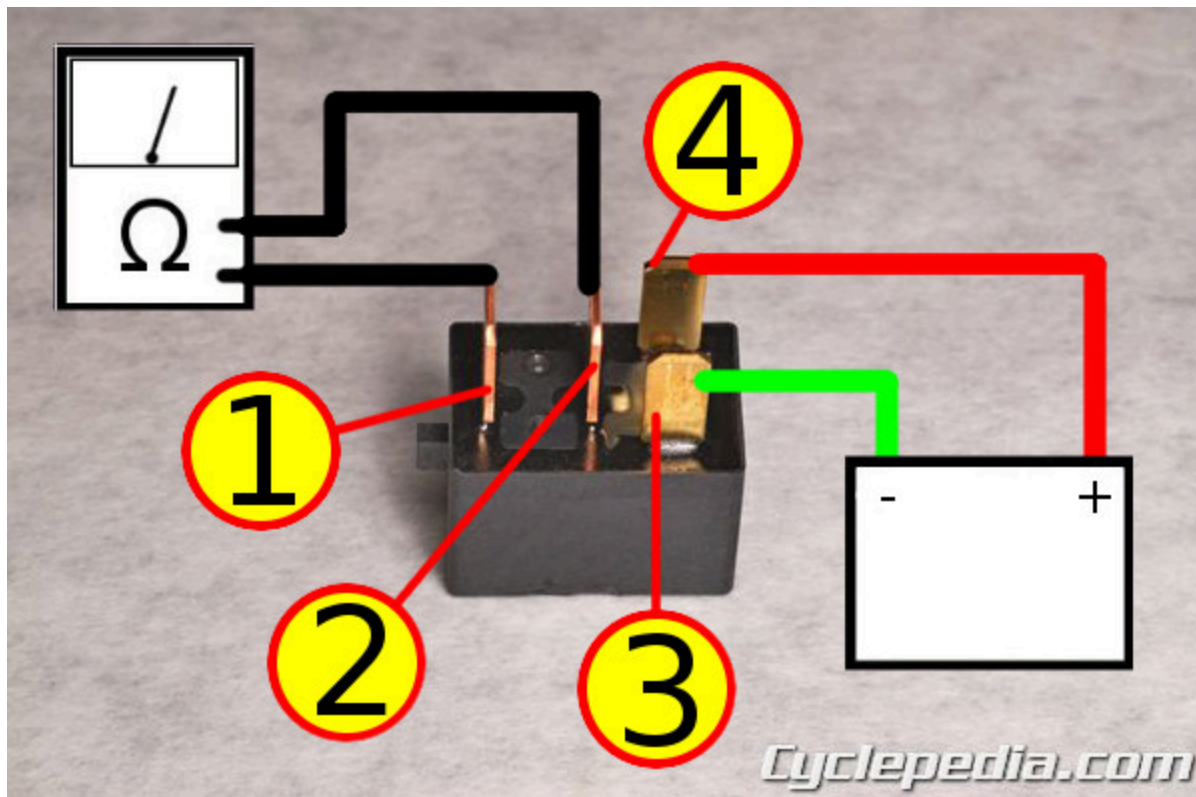
The ignition relay (A) and fan control relays (B) are identical part numbers.



Remove the relay from the holder for testing or replacement.

Because the relays are identical the quickest and easiest test is if one is thought to be faulty is to swap them and see if the problem follows the suspect relay.

However the relay can also be tested directly using a meter, 12-volt battery, and a set of jumper wires.



Set the multimeter to read ohms of resistance.

Measure the resistance between the terminals 1 and 2 while jumping 12 Volts to the 3 and 4 terminals as shown. There should be continuity between the 1 and 2 terminals only when the jump is complete. Replace the relay if it is faulty.

## **Starter Relay**

The starter relay is mounted to the battery case under the left side cover. See the [Starter System](#) <sup>[1]</sup> topic for more information on testing or servicing the starter relay.

## **Turn Signal Relay**





The turn signal relay is located just behind the battery and starter relay on the left side of the motorcycle.



Remove the left side cover for access. See the [Bodywork](#) <sup>[2]</sup> topic for more information.





Remove the relay and holder from the stay to test or replace the relay.

### **Inspection**

#### **Turn Signal Relay Input Voltage**



Access the relay as shown earlier in this section and unplug the turn signal relay 3P connector.

Turn the ignition switch ON.

Measure the voltage at the turn signal position relay 3P connector terminals of the wire side.



**CONNECTION:** Black (+) to Green (-)

**STANDARD:** Battery voltage

There should be standard voltage. If there is no standard voltage, there is an open in the Black or Green wire.

### **Turn Signal Line Inspection**

Turn the ignition switch OFF.

Connect a meter with a peak voltage adapter to the Gray terminal of the turn signal position relay 3P connector and a good ground.

**Special Tool – Peak Voltage Adapter:** 07HCJ-0020100 or commercially available equivalent with 10M impedance

**CONNECTION:** Gray (+) to Ground (-)

Turn the ignition switch ON and set the turn signal switch ON, and measure voltage.

**STANDARD:** Battery Voltage – Measured Voltage = 1.5V Max

If measured voltage is not within 1.5 volts of battery voltage, check for an Open or Short in the Orange or Light Blue wires. If the circuit is good, suspect the left handlebar switch.

If the measured voltage is within specification but the signals do not work, replace the turn signal relay with a known good part and recheck.

URLs in this post:

[1] Starter System: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/starter-system/>

[2] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

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## - Honda CRF300L Service Manual

### ECM

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

Nitrile Gloves

Safety Glasses

#### Notes:

Always clean around and keep any foreign material away from the ECM 33-pin connector before disconnecting it.

A faulty PGM-FI system is often related to poorly connected or corroded terminals. Check all related connections before proceeding.

In testing at ECM 33-pin connector (wire harness side) terminal, always use the test probe. Insert the test probe into the connector terminal, then attach the digital multimeter probe to the test probe.

**Special Tool – Test probe:** 07ZAJ-RDJA110

### **ECM Mounting**



The ECM and ECM harness connector are located on the left side of the chassis behind the left fuel tank shroud and coolant reserve tank cover both of which must be removed for access. See the [Bodywork](#) <sup>[1]</sup> topic for more information on either.





The coolant reserve tank must also be removed or repositioned for access to the ECM. See the [Coolant Reserve Tank](#) <sup>[2]</sup> topic for more information.



Free the rubber shroud at the bracket under the ECM.





Pull the shroud back for access.



Remove the ECM and holder from the mount.

**Caution: Do not unplug or plug in the ECM while the ignition switch is in the ON position.**





Release the retaining tab and pull the ECM off the 33P (Black) harness connector.



Inspect the connector and make sure the it is in good condition and the terminals are making good contact.



Inspect the ECM terminals as well for signs of damage or corrosion.

When performing tests on the circuit it is a good idea to leave the ECM out of the harness to prevent the possibility of damage, and many of the circuit tests can be made from this connector so the entire circuit can be checked.

#### Notes:

Always clean around and keep any foreign material away from the ECM 33-pin connector before disconnecting it.

Do not unplug or plug in the ECM connector while the ignition switch is in the ON position.

A faulty PGM-FI system is often related to poorly connected or corroded terminals. Check all related connections before proceeding.

In testing at ECM 33-pin connector (wire harness side) terminal, always use the test probe. Insert the test probe into the connector terminal, then attach the digital multimeter probe to the test probe.

**Special Tool – Test probe:** 07ZAJ-RDJA110

## Inspection

Check the input voltage and ground line of the ECM if the engine doesn't start and the MIL doesn't blink.

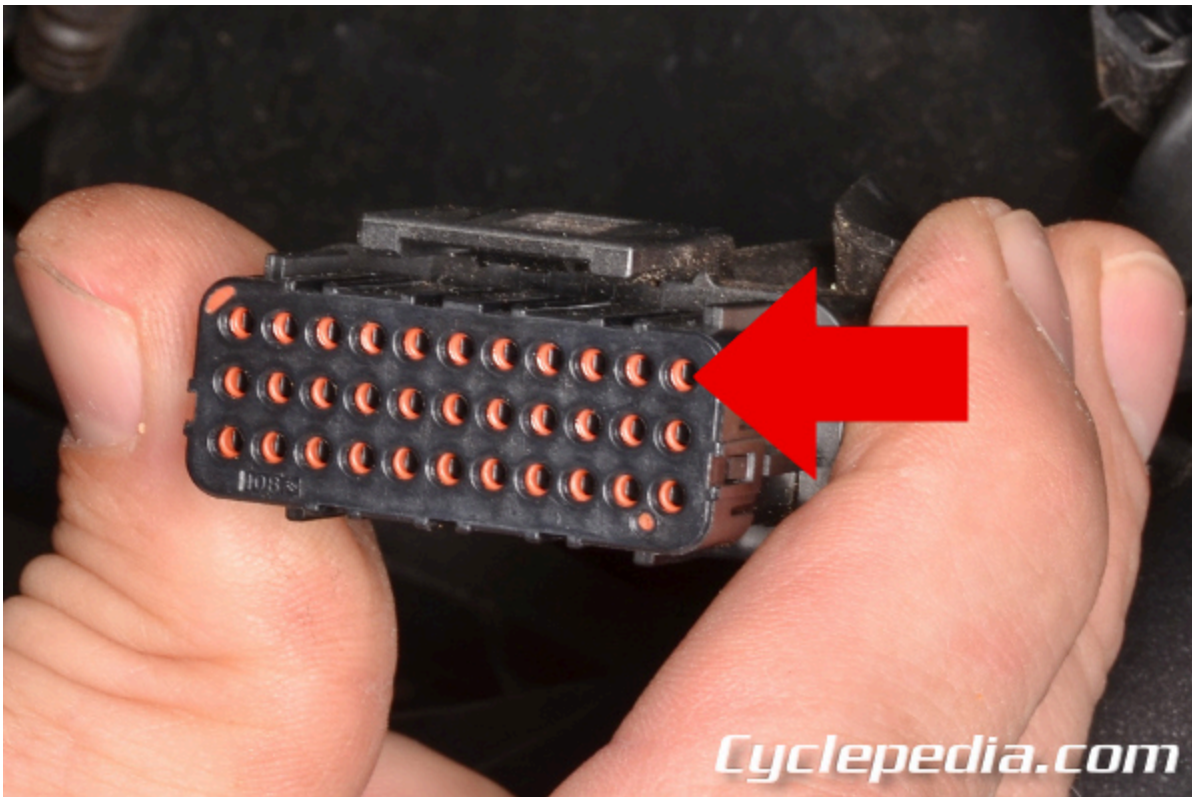
### Step 1 Input Voltage

Make sure the ignition is OFF and unplug the ECM connector as shown earlier in this section.

Set the multimeter to read DC voltage.

Turn the ignition switch ON and the engine stop switch to RUN.





Measure the voltage at the ECM 33P connector of the wire harness side and ground with the special tool and the multimeter.

Connection: Black/blue (+) to Ground (-)

Standard: Battery voltage

**Special Tool – Test probe:** 07ZAJ-RDJA110

Is battery voltage present?

Yes – GO TO STEP 2

No – Inspect the following:

Open or short circuit in Black/blue wire

Fuses <sup>[3]</sup> (specifically the main 30A fuse and the 10A FI

Relays <sup>[4]</sup> (Ignition)

Switches <sup>[5]</sup> (Ignition Switch and Engine Stop Switch)

## **Step 2 Sensor Unit Power Line Inspection**

Turn the ignition switch OFF.

Set the multimeter to read ohms of resistance.



Check for continuity between the ECM 33P connector of the wire harness side and ground with the special tool and the multimeter.

Connection: Yellow/red (+) to Ground (-)

Standard: No Continuity

**Special Tool – Test probe:** 07ZAJ-RDJA110

Is there continuity?

Yes – there is a short in the Yellow/red wire which must be repaired

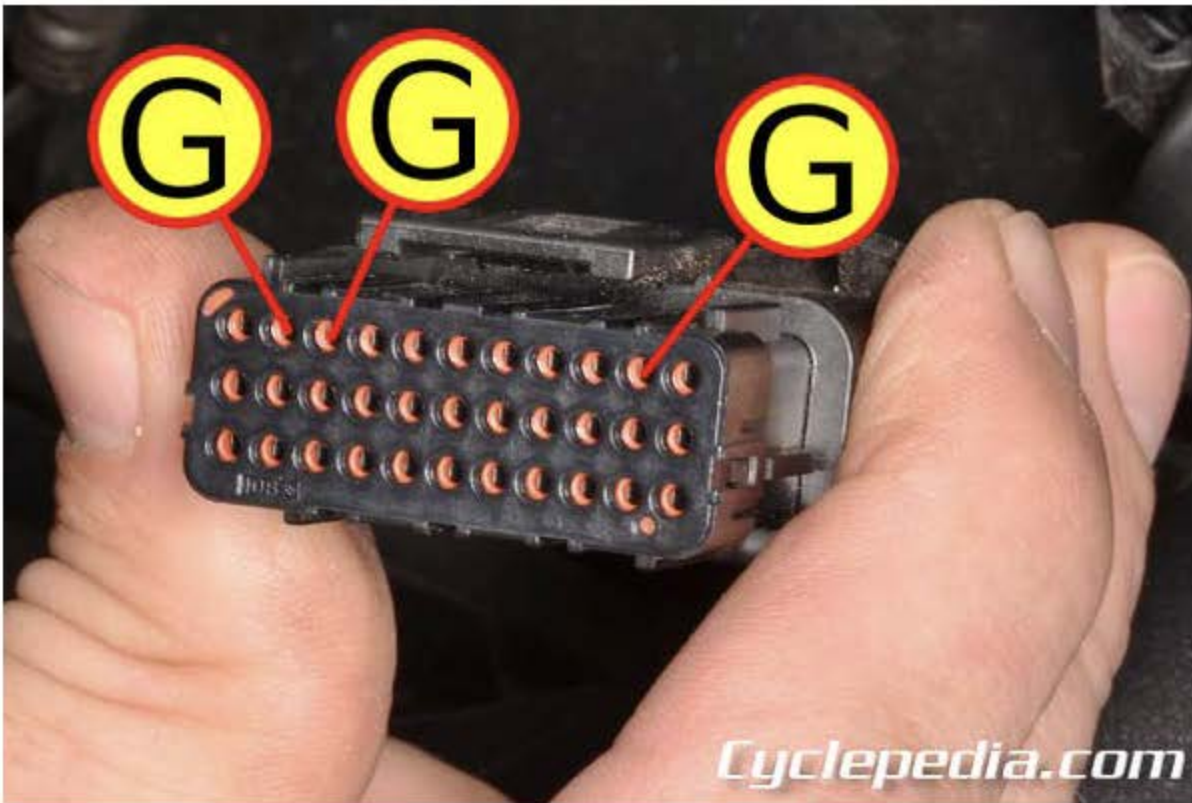
No – GO TO STEP 3

### **Step 3 Ground Line Inspection**

Turn the ignition switch OFF.

Set the multimeter to read ohms of resistance.





Check for continuity between indicated terminals of the ECM 33P connector of the wire harness side and ground with the special tool and the multimeter.

Connections: Green (Pin 2) to Ground, Green (Pin 9) to Ground, and Green (Pin 10) to Ground

Standard: Continuity to ground

**Special Tool – Test probe:** 07ZAJ-RDJA110

Is there continuity?

Yes – Replace the ECM with a new item

No – Open circuit in one or more of the Green ground wires

URLs in this post:

[1] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

[2] Coolant Reserve Tank: <https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/coolant-reserve-tank/>

[3] Fuses: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/fuses/>

[4] Relays: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/relays/>

[5] Switches: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/switches/>

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## - Honda CRF300L Service Manual

### Fuses and Diodes

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### Suggested Tools and Supplies

Needle Nose Pliers  
Meter/DVOM  
Nitrile Gloves  
Safety Glasses

Fuses can be found at various locations on the chassis depending on the model as follows:

Main Fuse – mounted to the top of the starter relay just behind the battery. Remove the left side cover to access. See the [Bodywork](#) <sup>[1]</sup> topic for more information.

Fuse Box A – all models contain a fuse box with multiple system fuses mounted under the seat. See the [Seat](#) <sup>[2]</sup> topic information on how to access it.

Fuse Box B – ABS models also contain a supplemental fuse box just above the tool box on the left side of the chassis. Remove the left side cover to access. See the [Bodywork](#) <sup>[1]</sup> topic for more information.

### Main Fuse

If no electrical items on the machine function, check the 30-amp main fuse first.



The main fuse is mounted in the top of the starter relay which is located immediately behind the battery.





Pull back the rubber cover from the starter relay and unplug the connector.



If no electrical items on the machine function, check the 30-amp main fuse first.

Remove the fuse from the starter relay and visually inspect it for failure. If there is any question, check the fuse for continuity with the multi-meter. Always replace the main fuse with a 30A fuse; never use a fuse of a larger or smaller capacity.



## Fuse Box(es)



As mentioned earlier, all models contain a fuse box under the seat.



The box is labelled to identify the fuse circuits and their recommended amperage ratings. This box also contains a diode.





ABS models have a second fuse box located in the fender assembly just above the tool box in the area shown. This box contains additional fuses used to power the ABS system.



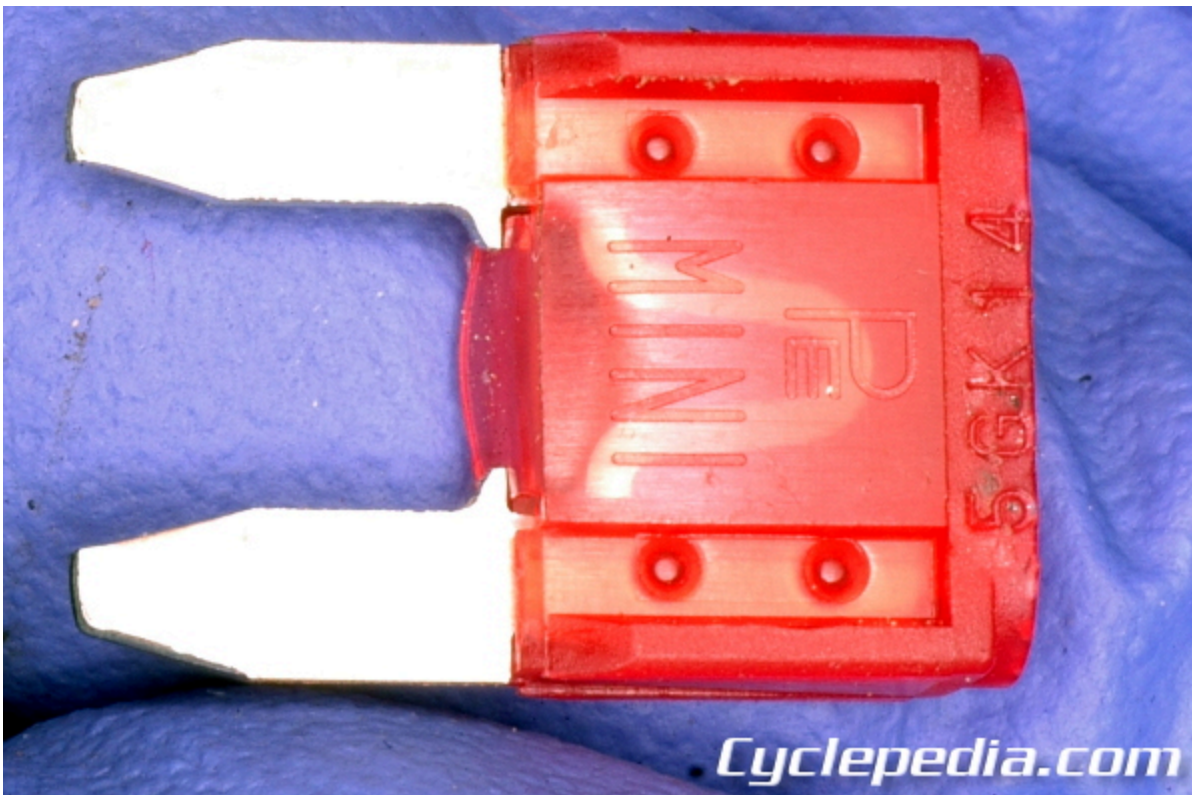
Open the lid of the fuse box to gain access to the fuses.

Note: The fuse box found under the seat contains a spare 10 A fuse.



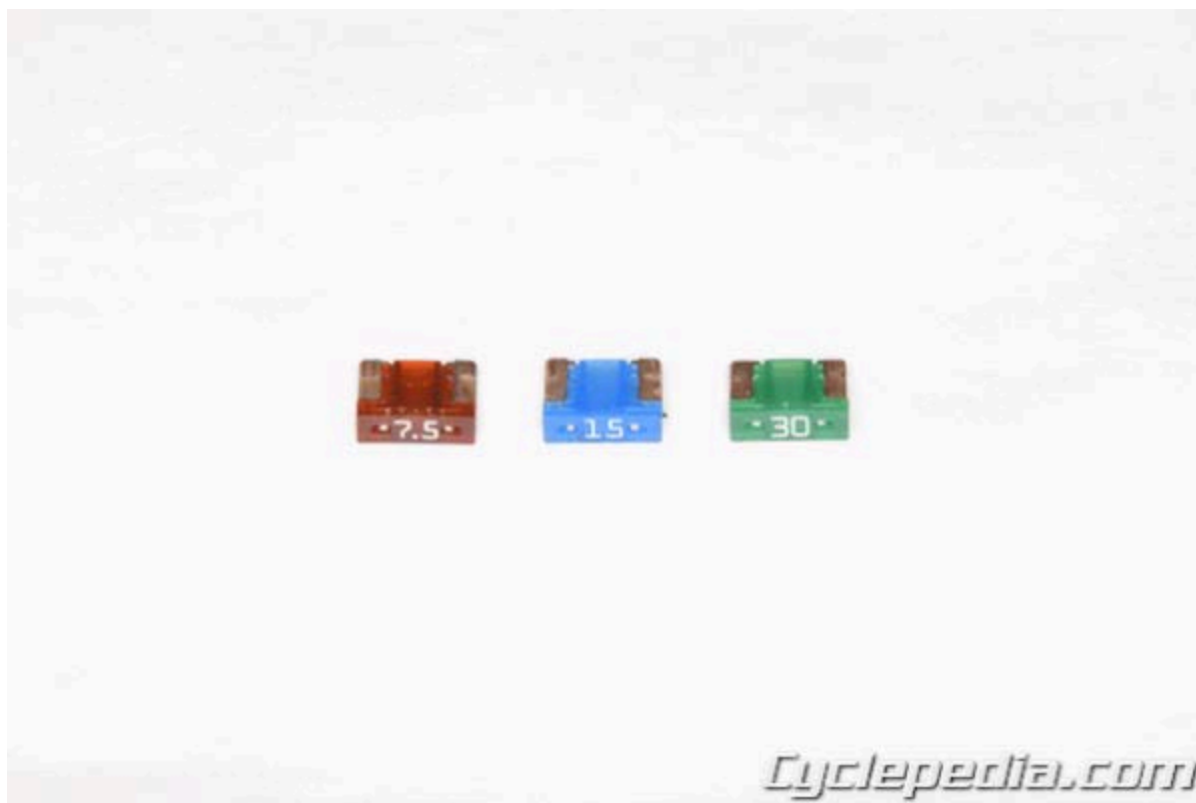


To inspect a fuse you will need to pull it out of the fuse box.



Make sure the fuse is intact with a visual inspection or by testing the fuse for continuity with a multimeter. There are spaces for spare fuses in the fuse box.





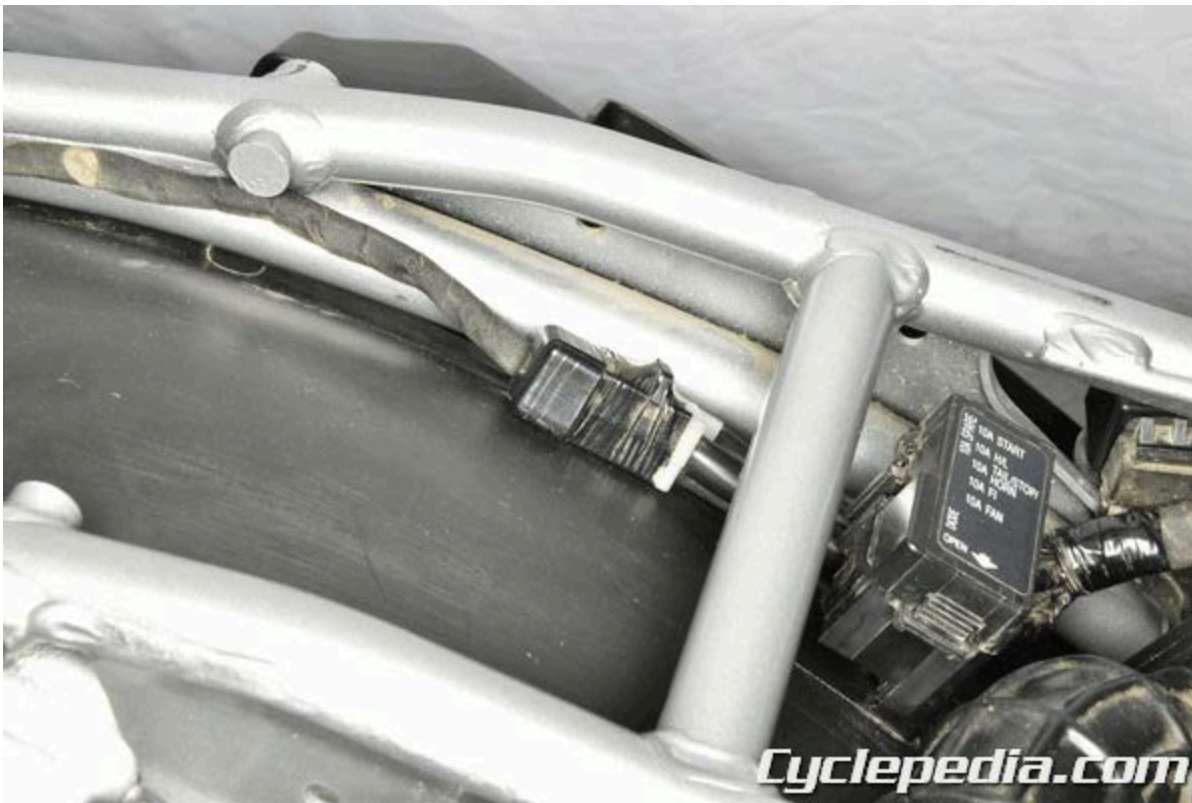
Always replace a blown fuse with a fuse of the proper amperage rating.

## Diodes

There are three different diodes used on the CRF300 chassis.



A 3-pin diode used by the starter relay circuit is found in the fuse box.



Another 3-pin diode (but of slightly different construction) is found mounted to the harness under the seat that is used by the hazard light circuit.

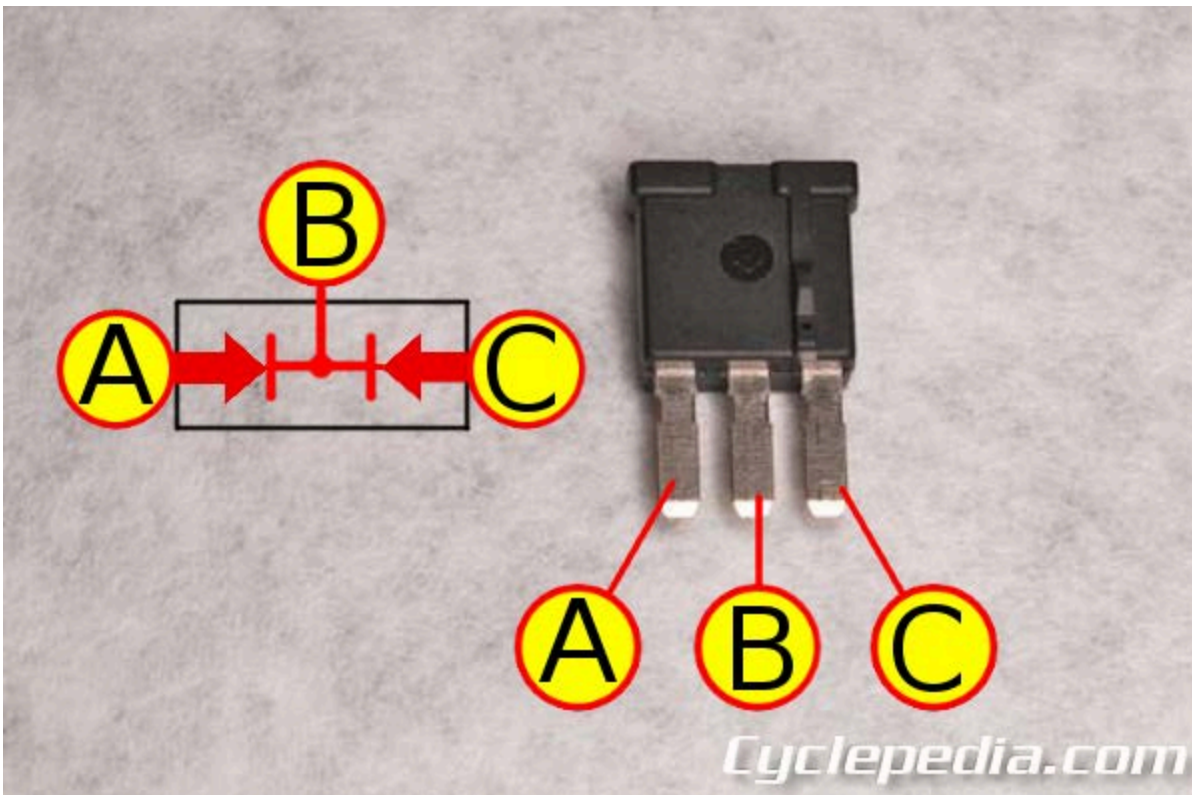


An 2-pin diode for the ECM controlled ignition relay circuit also is also found under the seat, tucked behind the hazard diode.





The easiest way to check any diode is to substitute a known good one. But diodes can also be removed for direct testing across the terminals.



A diode is basically a one-way electrical check valve, meaning it only allows current to pass in one direction. It is easily checked using a multimeter set to read Ohms of resistance ( $\Omega$ ).

Check for continuity between the diode terminals. When there is continuity, a small resistance value will show. The diode is normal if there is continuity, in only one direction. For the one found in the fuse box,

use the arrows shown in the accompanying photo to determine proper testing, it should show continuity only from each of the outer pins (+) to the inner pin (-).



For the 3-pin hazard diode, testing should show continuity only from either of the two parallel/side-by-side pins (for the Orange or Light Blue wires, +) to the lone pin that is perpendicular to them (for the Red/Blue wire, -).

For the 2-pin ignition relay circuit diode found inline under the fender, diode should show continuity only in one direction from the terminal for the Brown (+) wire toward the terminal for the Green (-) wire.  
URLs in this post:

[1] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

[2] Seat: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/seat/>

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## - Honda CRF300L Service Manual

Meter

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

### Suggested Tools and Supplies

#2 Phillips Screwdriver

Nitrile Gloves

Safety Glasses

## Service

For removal or inspection of the meter, remove the headlight cowl for access. See the [Bodywork](#) <sup>[1]</sup> topic for more information.

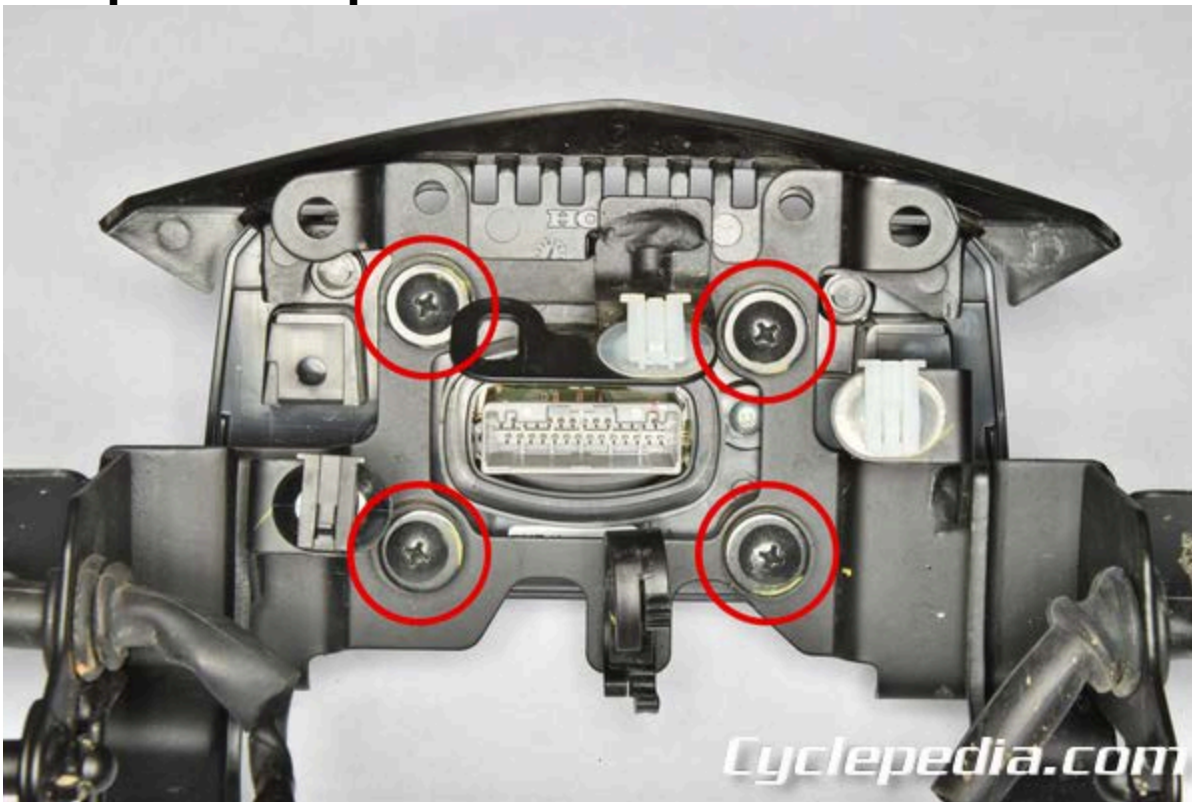


Either remove the entire meter and turn signal assembly for access, or disconnect/relocate enough of the wiring for access to the meter wiring and mounting screws. See the [Meter Mount](#) <sup>[2]</sup> topic.



Pull back the rubber boot and unplug the meter connector.

## Component Replacement



Remove the four meter screws using a #2 Phillips driver.





Separate the meter from the mount.



The connector cover is secured to the mount by two trim clips.



Release the clips to separate the cover and mount.



The meter itself is installed inside an upper and lower case assembly that is secured by five screws. Remove the screws using a #2 Phillips driver to replace the meter itself or either of the cover components. During assembly tighten the screws securely.





If the connector cover and mount were separated, secure them using two trim clips.



Before installation make sure the rubber grommets are in position and in good condition. Replace, as necessary, then install the screws and tighten to specification.

**Meter screw:** 1.0 N-m (0.1 kgf-m, 0.7 ft-lb)

## **Meter Clock Setting Procedure**

Turn the ignition switch on (with the stop switch set to run).



Push and hold both the SELECT (top arrow) and SET (bottom arrow) buttons until the hour digits start blinking.

Push the SELECT button until the desired hour is displayed. Each press of the button advances it by one hour.

NOTE: Push and hold to advance the hour fast.

Push the "SET" button, then the minute digits will start blinking.

Push the "SELECT" button until the desired minute is displayed. Each press of the button advances it by one minute.

NOTE: Push and hold to advance the minute fast.

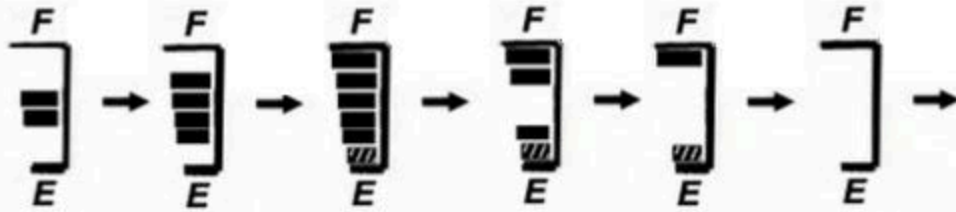
Push the "SELECT" button again to complete the time setting or turn the ignition switch to OFF.

Note: If at any time a button is not pressed for 30 seconds the display will stop flashing and the adjustment will be cancelled.

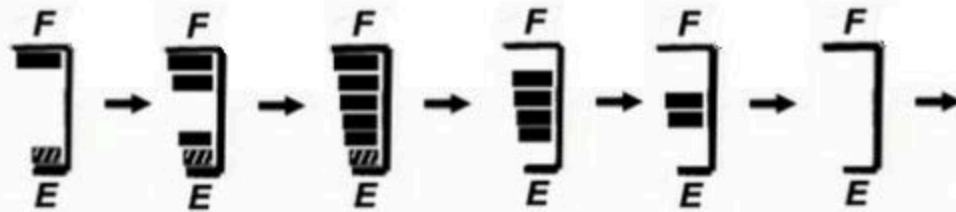
## Fuel Level Gauge Troubleshooting



**Open Circuit (starts at center - works outward)**



**Short Circuit (starts at top/bottom - works inward)**



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If the fuel level circuit malfunctions the combination meter will display one of two patterns depending on whether the failure is an open or short circuit as shown above and as follows:

For an open circuit the fuel gauge will display the level bars in pairs starting **at the center and working outward** until it displays FULL, then will erase the level bars in pairs, again starting at the center and working outward until the display reads EMPTY.

For a short circuit the fuel gauge will display the level bars in pairs starting **at the top and bottom of the display working inward** until it displays FULL, then will erase the level bars in pairs, again starting at the top and bottom working inward until the display reads EMPTY.



To inspect the circuit raise and support the tank as needed for access and unplug the fuel pump connector. See the [Fuel Tank](#) <sup>[3]</sup> topic for more information.

Check the Yellow and Green wires in the harness for opens or shorts. See the [Wiring Diagram](#) <sup>[4]</sup> topic for more information.

If the wiring for the circuit is OK, check the fuel level sensor. See the [Fuel Pump](#) <sup>[5]</sup> topic for more information.

If the wire harness and fuel level sensor are good, replace the meter assembly.  
URLs in this post:

[1] Bodywork : <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

[2] Meter Mount: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/meter-mount/>

[3] Fuel Tank: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/fuel-tank/>

[4] Wiring Diagram: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/wiring-diagrams/>

[5] Fuel Pump: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/fuel-pressure-regulator/>

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## - Honda CRF300L Service Manual

### Headlight

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

#2 Phillips screwdriver

Nitrile Gloves

Safety Glasses

Note: The L/LA models use a standard halogen headlight assembly with replaceable bulb, while the LR/LRA models are instead equipped with an LED headlight unit. On the LR/LRA models the entire headlight unit must be removed from the headlight cowl and replaced if defective.

See the [Headlight Aiming](#) <sup>[1]</sup> topic in the Maintenance section for information on adjusting the headlight beam.

#### **Bulb Replacement on L/LA models**



The bulb is replaced from behind the headlight cowl/visor assembly so it must be removed for bulb replacement. See the [Bodywork](#) <sup>[2]</sup> topic for more information.



Remove the rubber dust cover.



Disengage the headlight bulb clip.





Remove the bulb. Do not touch the glass bulb with a bare hand. Replace the bulb as needed. When installing the bulb align the tabs on the bulb with the slots in the housing.



Set the bulb in place as shown. Secure the bulb with the clip.



Install the rubber cover. Make sure to position it as shown.

Reconnect the wiring and install the headlight cowl/visor. See the [Bodywork](#) <sup>[2]</sup> topic for more information.

## Headlight Unit Replacement

### L/LA Models





The headlight unit (bulb housing) is secured to the cowl/visor using four screws and may be separated from the cowl once the headlight cowl is removed from the chassis. See the [Bodywork](#) <sup>[2]</sup> topic for more information.



The headlight unit is secured to the cowl/visor by four screws.



Remove the screws using a #2 Phillips screwdriver.



Remove the headlight unit from the cowl. When installing the unit use a driver to carefully tighten the four screws to specification.

**Headlight unit-to-visor mounting screw (L/LA):** 1.2 N-m (0.1 kgf-m, 0.9 ft-lb)

### **LR/LRA Models**



The LED headlight unit is secured to the cowl using four screws and may be separated from the cowl once the headlight cowl is removed from the chassis. See the [Bodywork](#) <sup>[2]</sup> topic for more information.





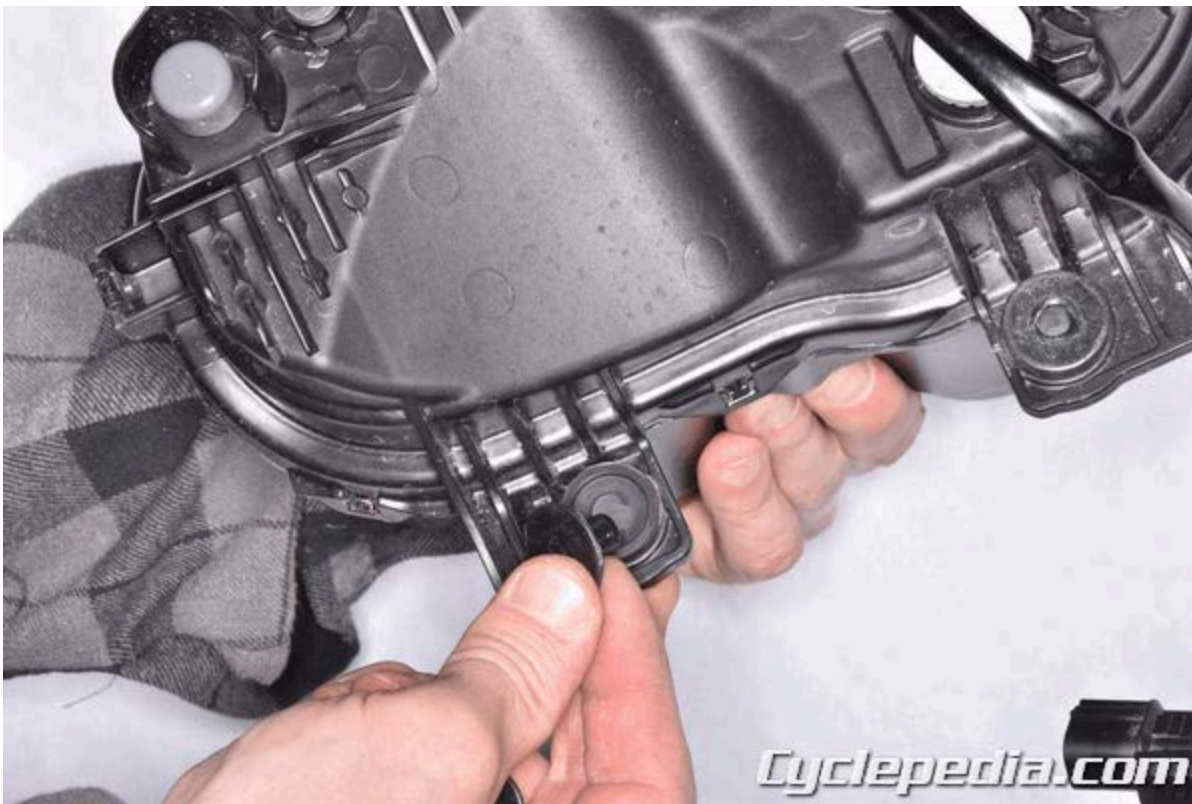
Loosen the five screws (four shown and one at the top rear of the housing) using a #2 Phillips screwdriver.



Separate the headlight unit from the cowl.



Recover the washers from the front of the unit.



Recover the collars from the back of the headlight unit. Inspect the grommets for wear or damage and replace, as needed.





If necessary separate the headlight ring from the cowl.

During installation install the headlight ring and cowl over top of the headlight unit. Install and tighten the screws securely. Then install the unit making sure the washers and collars are in place over the grommets.

URLs in this post:

[1] Headlight Aiming: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/headlight-aiming/>

[2] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

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## - Honda CRF300L Service Manual

### Lights

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

5 mm Hex Driver  
8 mm Wrench and/or Socket  
10 mm Socket  
Ratchet  
#2 Phillips screwdriver  
#3 Phillips screwdriver  
Nitrile Gloves  
Safety Glasses

Do not touch halogen bulbs with your bare hand. The oils on your hand can cause the failure of the bulb when it gets hot. Clean the bulb with a lint free towel and alcohol if you touch it bare handed.

If you have any question whether a bulb is good or not, check across the filament wires at the bulb socket with a multi-meter set to the resistance scale (ohm x1). If there is continuity across the filament the bulb is good. No continuity indicates a bad bulb.

### **Turn Signal Troubleshooting**

If all turn signal lights blink faster than usual, replace the turn signal light relay (see [Relays](#) <sup>[1]</sup>) using a known good one and recheck.

If all the turn signals do not light check the following:

Electrical Connectors and Wiring Harness – [Wiring Diagram](#) <sup>[2]</sup>

[Battery](#) <sup>[3]</sup> (check charge/condition, connections)

[Fuses](#) <sup>[4]</sup>

Ignition and Turn Signal – [Switches](#) <sup>[5]</sup>

[Relays](#) <sup>[1]</sup> (check relay input circuit and relay)

### **Headlight**

For information on the headlight see the [Headlight](#) <sup>[6]</sup> topic.

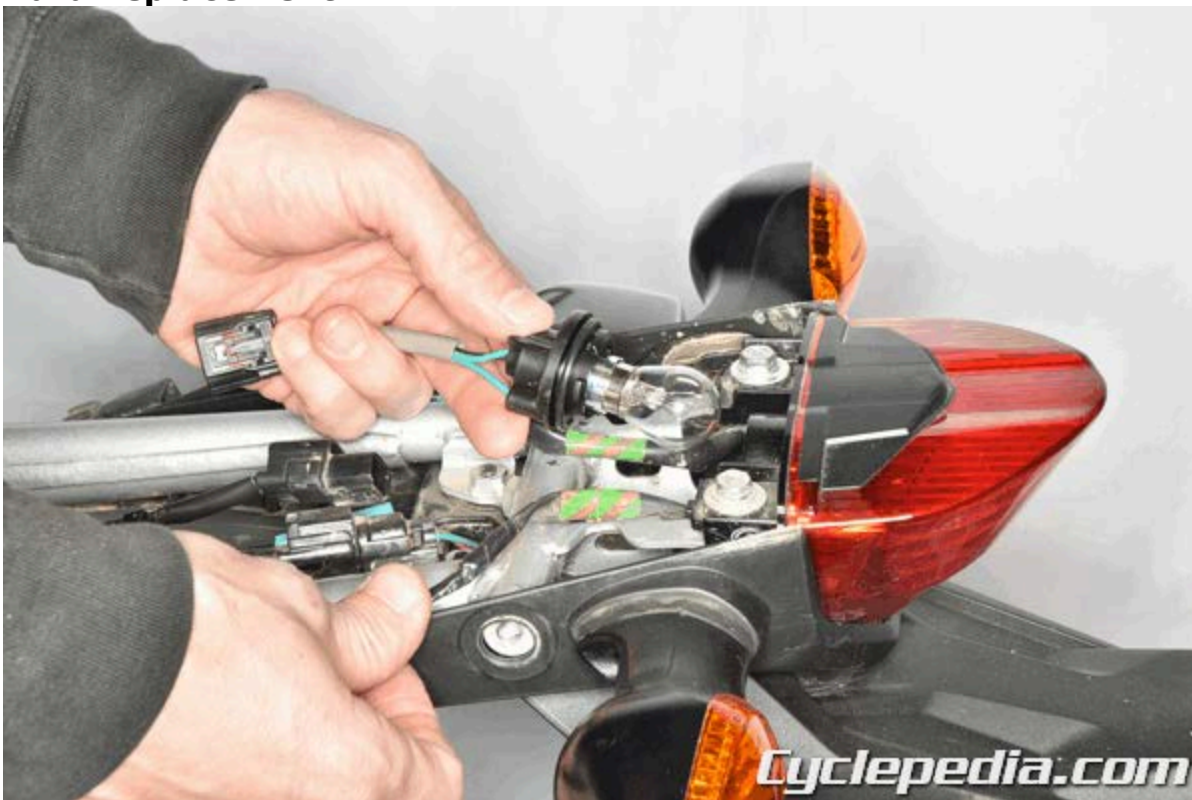
### **Tail/Brake Light**





Remove the Rear Cowl/Upper Fender for access. See the [Bodywork](#) <sup>[7]</sup> topic for more information.

## Bulb Replacement



Turn the tail light socket **counterclockwise** and pull the socket from the tail light housing.





Push in and rotate the bulb **counterclockwise** to remove it. Replace the bulb as needed. Insert the bulb and rotate it **clockwise** to lock it into place.



Turn the socket **clockwise** to lock it into place in the tail light unit.

Install the Rear Cowl/Upper Fender. See the [Bodywork](#) <sup>[7]</sup> topic for more information.

## Housing Service





Free the harness connectors from the protector.



Unplug the tail/brake light harness connector (or alternately pull the bulb and socket from the housing, whichever is preferred).



Remove the two tail/brake light housing mounting bolts using a 10 mm socket.

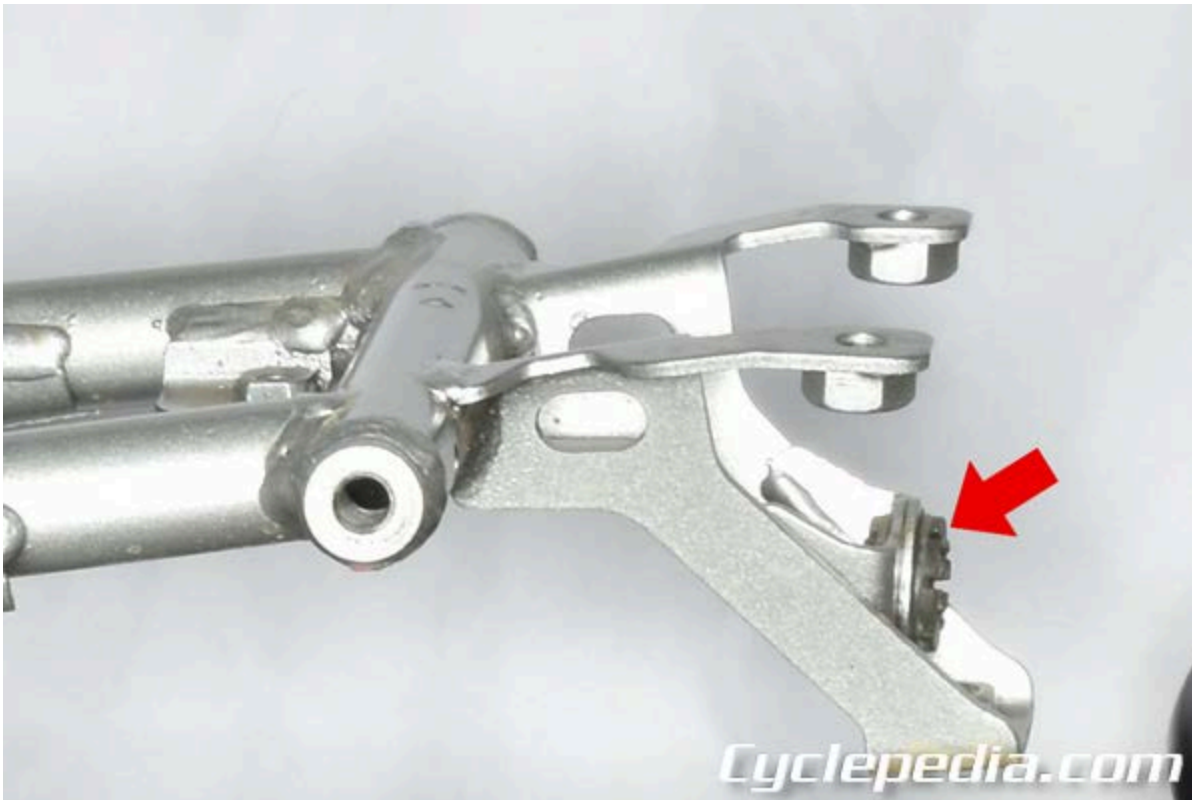


Grasp the housing and carefully pull it straight back to release the pin from the grommet in the frame.





Remove the collars and inspect the rubber grommets for the mounting bolts. Inspect the rubbers and replace as needed.



Also inspect the condition of the rubber grommet in the frame. Replace if worn, damaged, or otherwise deteriorated.



Install the housing by seating the pin in the frame grommet, then installing the bolts and collars. Tighten the two mounting bolts using a 10 mm socket.

**Tail/Brake light cover mounting bolt:** 4.5 N-m (0.5 kgf-m, 3.3 ft-lb)



Reconnect the wiring or install the bulb socket, as applicable.

Install the Rear Cowl/Upper Fender. See the [Bodywork](#) <sup>[7]</sup> topic for more information.



## License Plate Light Replacement



The LED tag light unit is mounted inside the rear fender/tag assembly which must be disassembled for access. See the [Bodywork](#) <sup>[7]</sup> topic for Rear Fender/Tag Assembly removal.



The cover on the underside of the tag light assembly is secured by two bolts. Remove the bolts using a 5 mm hex driver.



Open the cover for access to the LED tag light bolts and/or the rear reflector mounting nut.



The LED tag light unit is secured by a pair of nuts and bolts mounted with washers and collars through isolating rubber grommets.





Hold the nuts with an 8 mm wrench or socket and remove the bolts using a #2 Phillips screwdriver. Keep track of the washer under each nut and the collars inserted into the grommets from under the LED light unit. Free the light and harness from the fender/tag assembly.

Note: Inspect the condition of the rubber grommets and replace as needed.



To remove the rear reflector remove the single mounting nut using an 8 mm socket.



During installation tighten the mounting nut on the reflector securely.



Install the LED light unit to the fender using the grommets, collars, washers, nuts, and screws as shown. Tighten the screws securely with a #2 Phillips driver while holding the nuts from turning using an 8 mm socket or wrench.





Route the LED unit wiring and install the cover to the underside of the rear fender/tag mount.



Install the two cover screws and tighten securely using a 5 mm hex wrench.

## **Turn Signals**

### **Bulb Replacement**



Remove the lens screw with a #2 Phillips screwdriver.



Remove the lens by carefully releasing the tab at the opposite end from the screw.





Inspect the lens and gasket and replace the components as necessary.



Sometimes the gasket remains in the housing instead of the lens. Replaced any gasket that is worn or damaged.



Push in and rotate the bulb **counterclockwise** to remove it. Replace the bulb as needed. Insert the bulb and rotate it **clockwise** to lock it into place.



Install the lens and tighten the screw to specification using a #2 Phillips driver.

**Turn signal light lens screw:** 1.5 N-m (0.2 kgf-m, 1.1 ft-lb)

**Front Turn Signal Housing Service (L/LA Models)**



Note: To instead remove the entire meter and turn signal assembly see the [Meter Mount](#) <sup>[8]</sup> topic.

Remove the headlight cowl/visor for access. See the [Bodywork](#) <sup>[7]</sup> topic for more information.



Open the wire band.



Carefully pull the right (light blue) and left (orange) turn signal connectors from the protective rubber boot.



Top service the right signal unplug the light blue connector.



Top service the right signal unplug orange connector.





Remove the turn signal light mounting screw using a #3 Phillips screwdriver.



Pull the housing off the rubber mount assembly and carefully feed the harness through the mount.



Remove the harness boot.



Remove the stay and collar assembly.





The stay and collar can be separated for individual replacement as needed.



Remove the rubber mount from the bracket as needed.

### **Front Signal Housing Installation (L/LA Models)**



Fit the rubber mount to the bracket, then install the collar and stay assembly.



Position the harness boot, then feed the turn signal harness through the mount, boot, and bracket assembly.





Seat the turn signal housing onto the mount.



Install the turn signal mounting screw and tighten the specification using a # 3 Phillips driver.

**Turn signal light screw (L/LA):** 2.5 N-m (0.3 kgf-m, 1.8 ft-lb)



Reconnect the turn signal wiring.



Place the connectors in the rubber protector and secure using a wire band.

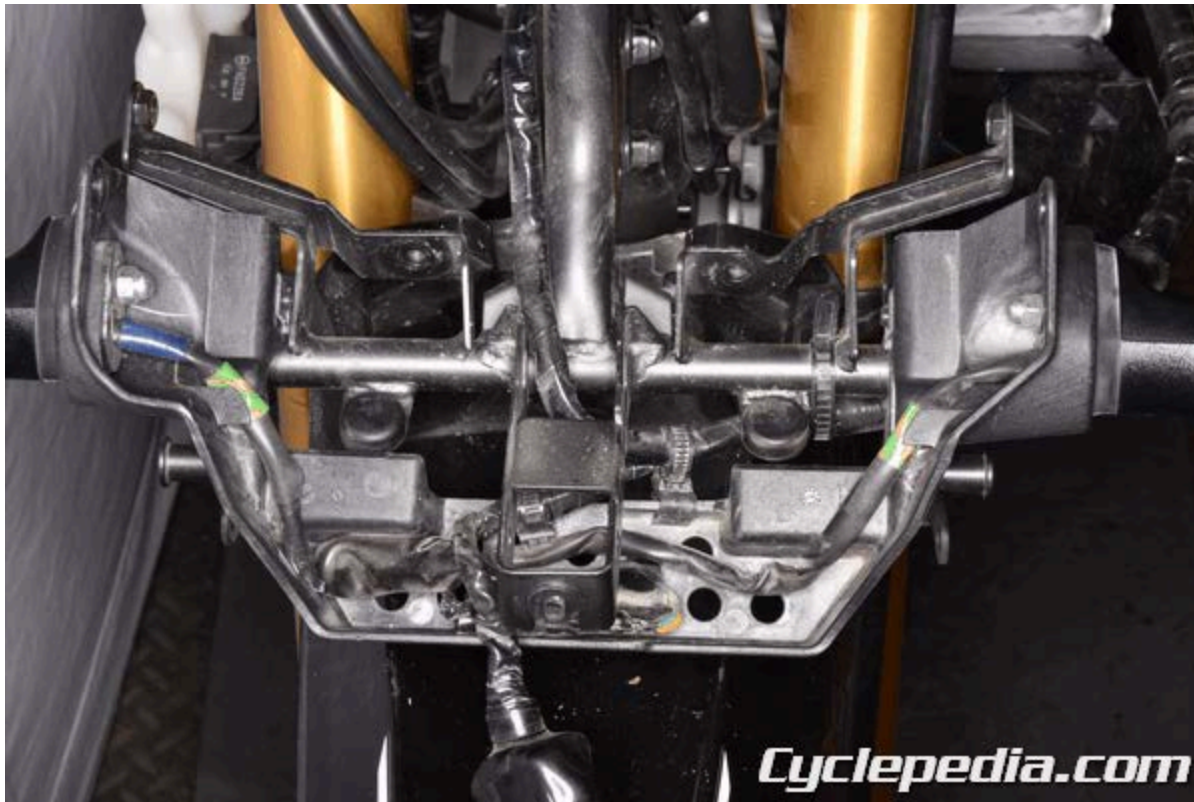
Install the headlight cowl/visor. See the [Bodywork](#) <sup>[7]</sup> topic for more information.

### **Front Turn Signal Housing Service (LR/LRA Models)**

Remove the windscreen/headlight cowl for access. See the [Bodywork](#) <sup>[7]</sup> topic for more information.



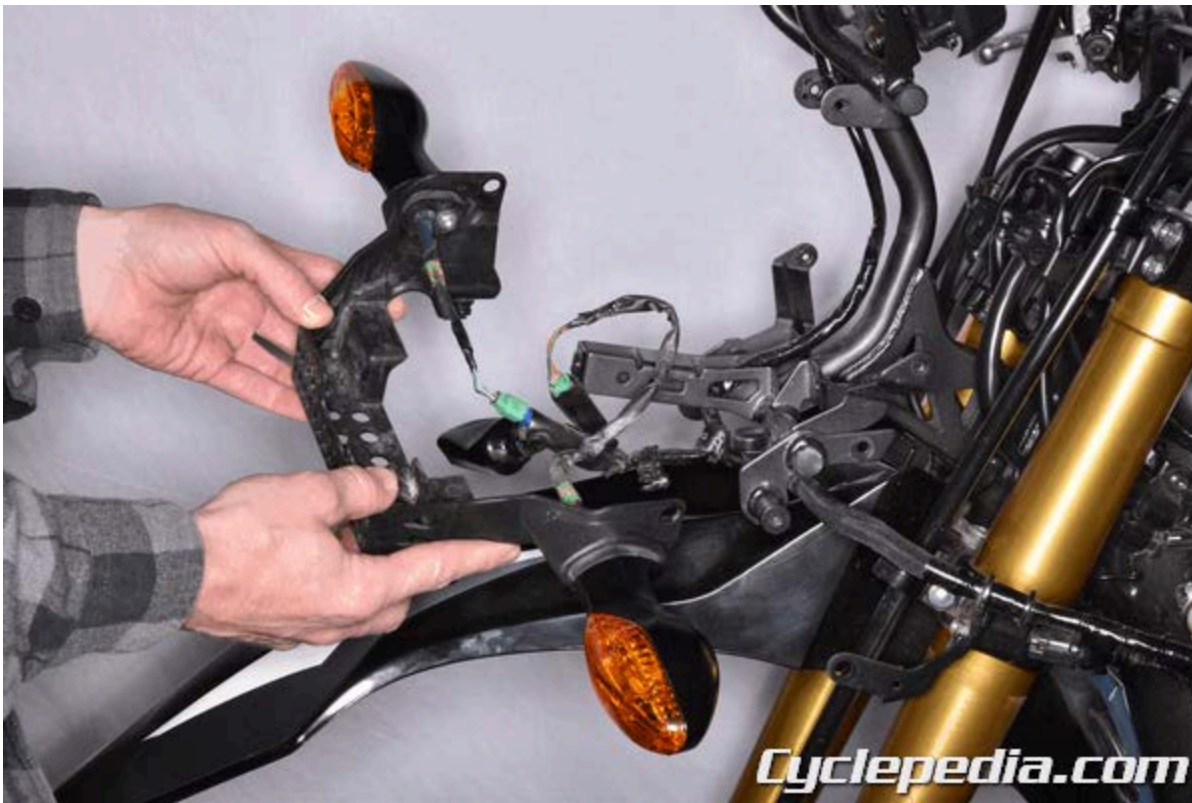
Note: During headlight cowl removal the turn signal mount (front box) is unbolted and pulled forward for access.



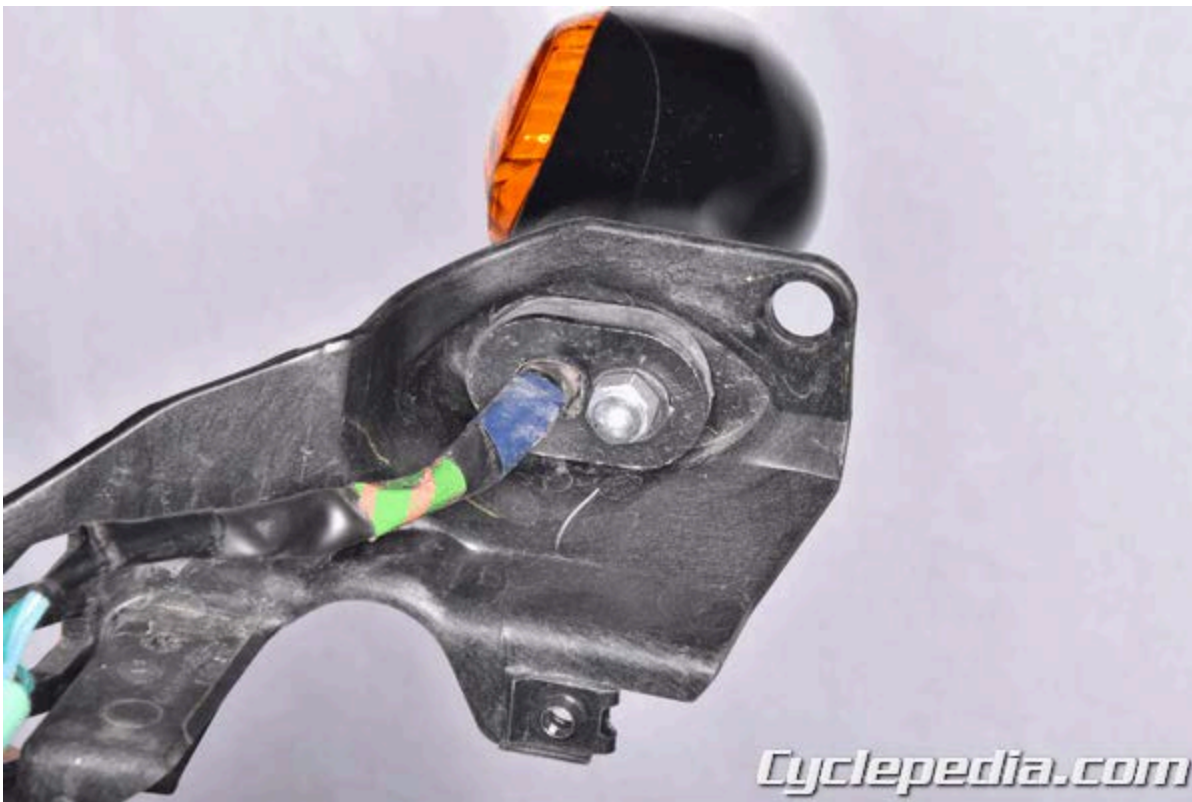
Note the wire routing and release the harness as needed for access.



Unplug the wiring for the signal being replaced (Right side: Light Blue, Left Side: Orange). Unplug one or both of the connectors as needed.



If both connectors are unplugged the whole mount can be removed as needed.



Loosen turn signal mounting nut using a socket or wrench.





Remove the nut and washer.



Pull the mount plate carefully down and over the harness.



Pull the turn signal housing and harness out of the mount and grommet.



Remove the grommet from the mount for inspection or replaced as needed.

### **Front Signal Housing Installation (LR/LRA Models)**

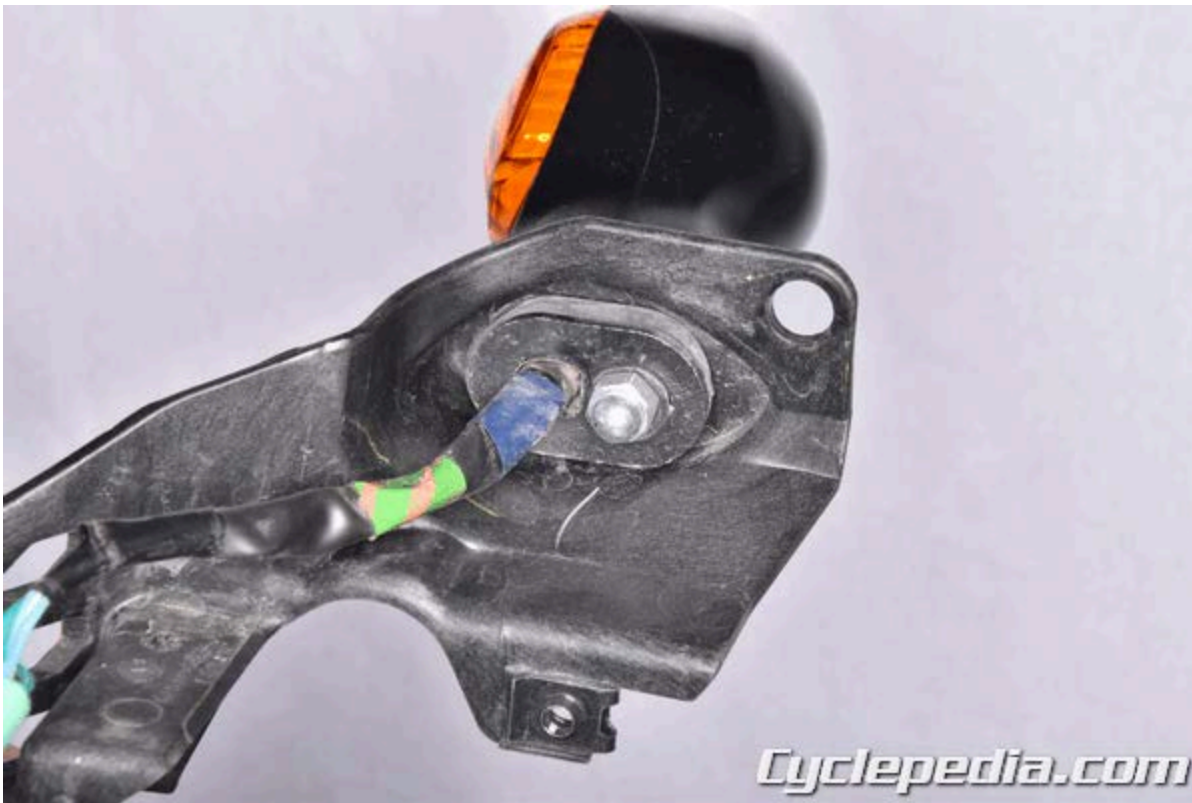




Install the grommet to the mount, then guide the harness through both.



Seat the housing in the grommet, then slide the plate into position.

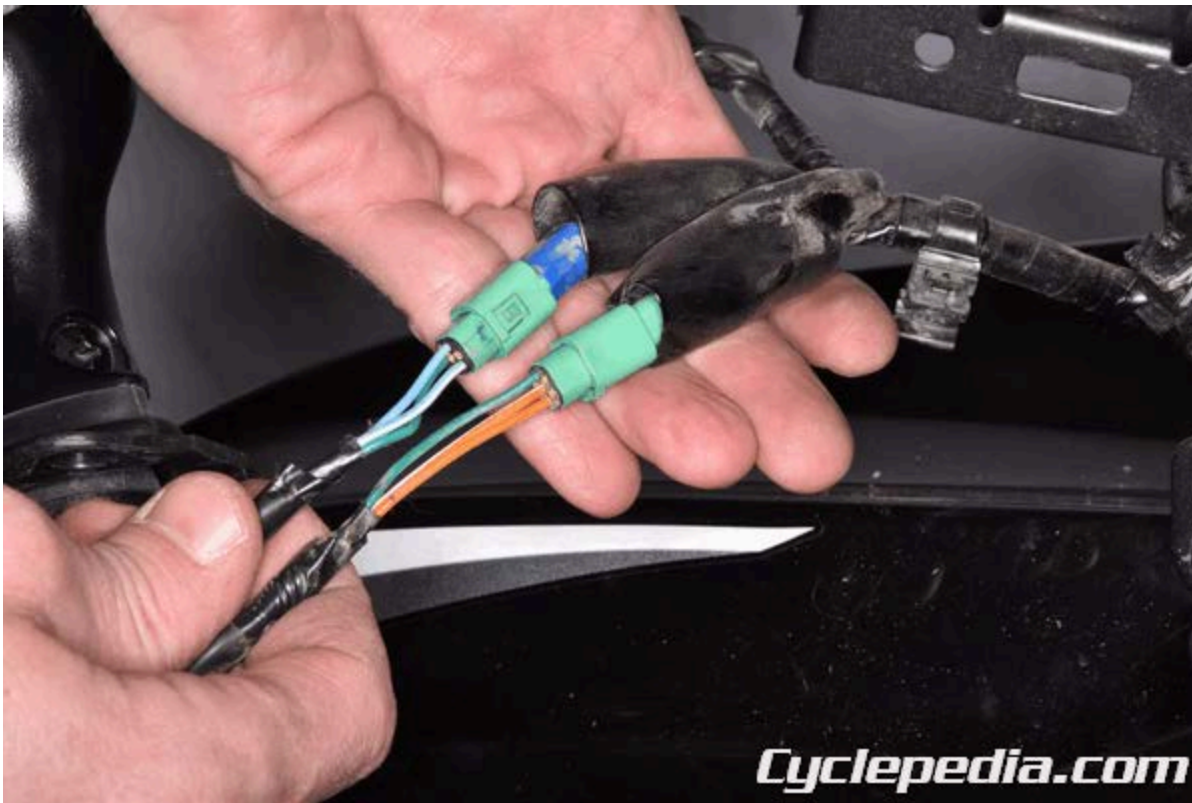


Install the nut and washer, then tighten securely.

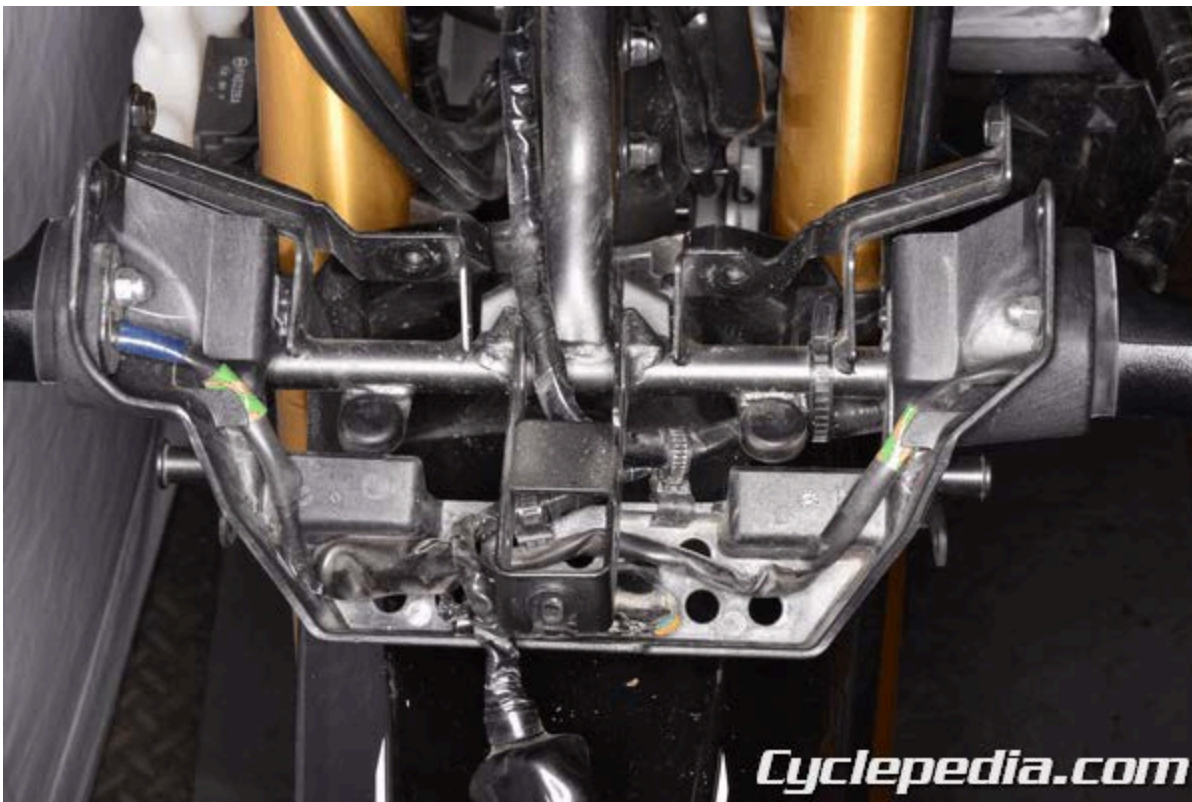


If the entire mount and signal assembly was removed, position it to the chassis.





Plug in the turn signal wiring connectors.



Route and secure the signal harnesses properly as shown.

Install the windshield/headlight cowl. See the [Bodywork](#) <sup>[7]</sup> topic for more information.

## **Rear Turn Signals Housing Service**

To remove the entire rear lower fender and signal assembly see the Rear Lower Fender procedure. To service either of the housings with the fender still installed remove the Rear Cowl/Upper Fender. Either way see the [Bodywork](#) <sup>[7]</sup> topic for more information.



To service the right turn signal unplug the blue and white connectors for the signal.



To service the left turn signal unplug the orange and white connectors for the left signal.





Remove the turn signal light mounting screw using a #3 Phillips screwdriver.



Remove the turn signal housing carefully guiding the harness through the mount.



Remove the collar and stay assembly from the back of the rubber mount. If necessary remove the rubber mount from the fender.



The collar and stay can be separated for individual component replacement as needed.

## **Rear Signal Housing Installation**





Install the rubber mount to the fender, then insert the collar and stay assembly.



Feed the harness through the mount and fit the rear turn signal onto the stay.



Install the turn signal mount screw and tighten the specification using a # 3 Phillips driver.

**Turn signal light screw:** 2.5 N-m (0.3 kgf-m, 1.8 ft-lb)



Reconnect the turn signal harnesses and secure them in the protective boot.

Install the Rear Cowl/Upper Fender. See the [Bodywork](#) <sup>[7]</sup> topic for more information. URLs in this post:



- [1] Relays: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/relays/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/relays/)
- [2] Wiring Diagram: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/wiring-diagrams/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/wiring-diagrams/)
- [3] Battery: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/battery/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/battery/)
- [4] Fuses: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/fuses/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/fuses/)
- [5] Switches: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/switches/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/switches/)
- [6] Headlight: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/lights/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/lights/)
- [7] Bodywork: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/)
- [8] Meter Mount: [\*\*https://www.cyclepedia.com/manuals/online/cpp-323/external-components/meter-mount/\*\*](https://www.cyclepedia.com/manuals/online/cpp-323/external-components/meter-mount/)

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## - Honda CRF300L Service Manual

Horn

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

### Suggested Tools and Supplies

10 mm Socket  
Ratchet  
Meter/DVOM  
Nitrile Gloves  
Safety Glasses

## Service



The horn is located on the left side of the chassis behind the left fuel tank shroud and coolant reserve tank cover both of which must be removed for access. See the [Bodywork](#) <sup>[1]</sup> topic for more information on either.





To test the horn, turn the ignition switch to the ON position. Press the horn button on the left side handlebar switch. The motorcycle should make a loud, almost musical noise, one that will be even more alarming inside of a shop or garage. If this noise occurs each time the button is pressed, the horn is okay and needs no servicing. If the horn remains silent when the button is pressed, check the fuses first. See the [Fuses](#) <sup>[2]</sup> section for more information. If the fuse is good, test the horn switch as described in the [Switches](#) <sup>[3]</sup> topic.



The horn is secured to the frame by a single bolt and powered by two 1P connectors. If replacement is necessary use a 10 mm socket to remove the mounting bolts and unplug the two connectors. During installation make sure the horn bracket is resting against the tab on the mount, then tighten the bolt securely.



To inspect the horn itself unplug the two connectors. Jump a 12V battery to the horn terminals. The horn should sound when the jump is completed. Replace the horn if it doesn't sound.  
URLs in this post:

[1] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

[2] Fuses: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/fuses/>

[3] Switches: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/switches/>

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## - Honda CRF300L Service Manual

### Sensors

**SAFETY FIRST: Protective gloves and eyewear are recommended at this point.**

#### **Suggested Tools and Supplies**

10 mm Socket (VS sensor replacement)  
10 mm wrench  
17 mm Sensor Socket or Wrench (O2 sensor replacement)  
Ratchet  
Torque Wrench  
Hot Plate (ECT testing)  
Beaker or Pot (ECT testing)  
Thermometer (ECT testing)  
DVOM (sensor testing)  
Nitrile Gloves  
Safety Glasses

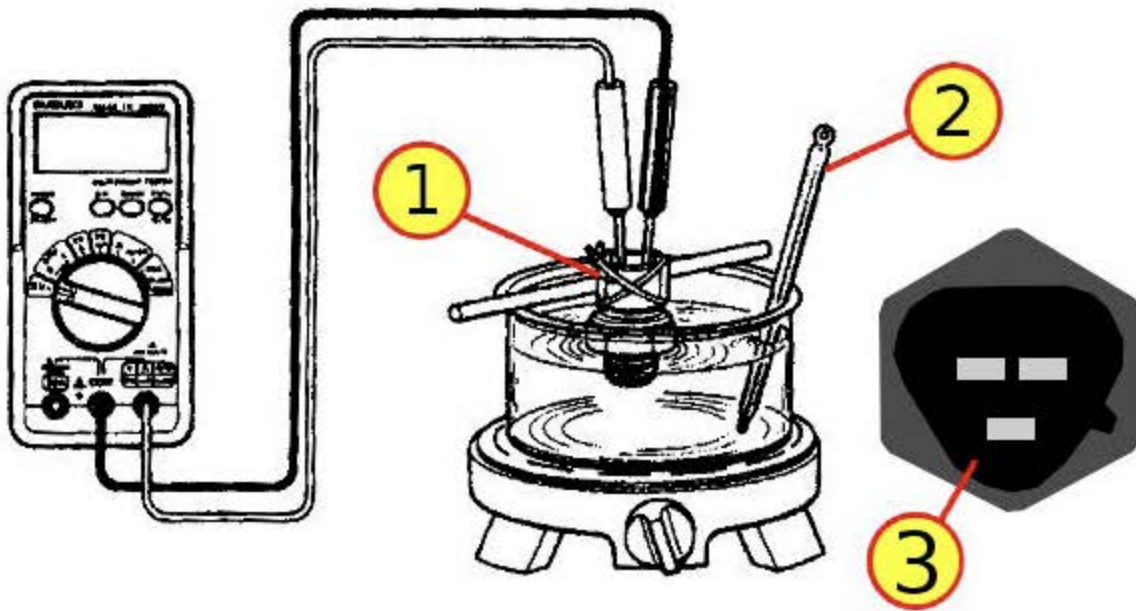
All of the sensors are sensitive to shock and rough handling. If you drop any of the sensors on the shop floor, plan on replacing it with a new one.

### **ECT Sensor**



Remove the ECT sensor from the cylinder head. See the [Cylinder Head](#) <sup>[1]</sup> topic for more information.

Note: The sensor can also be tested while installed in the head if an accurate head temperature can be obtained using a commercially available pyrometer.



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Suspend the ECT (1) in a suitable container filled with coolant (1:1 mixture) so that the sensor is not touching the bottom or sides of the container. Heat the coolant with an electric heating element.

Caution: Wear insulated gloves and adequate eye protection. Keep flammable materials away from the burner.

Check the sensor resistance as the coolant heats up. Touch the meter leads to the top two terminals (that are side-by-side) on the sensor (3). Observe the temperature with a thermometer (2) which should not touch the sides or bottom of the container either to make sure it is the same temperature as the liquid.

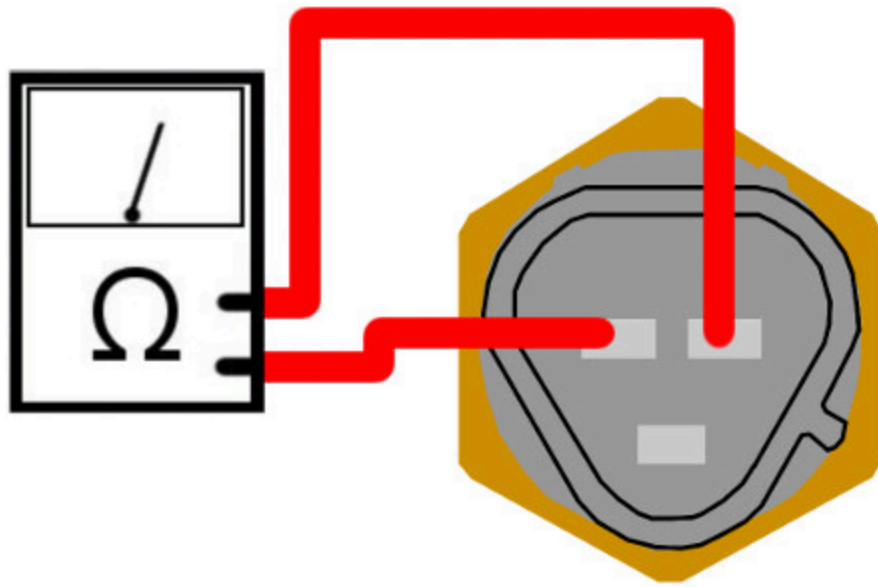
#### NOTE:

Soak the ECT sensor (1) in coolant up to its threads with at least 40 mm (1.6 in) from the bottom of the pan to the bottom of the ECT sensor.

Keep temperature constant for 3 minutes before testing. A sudden change of temperature will result in incorrect readings. Do not let the thermometer (2) or ECT sensor (1) touch the pan.

The sensor is a negative coefficient thermistor which means that resistance across the sensor terminals should **decrease** as temperature **increases**.





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Checking the ECT EFI circuit using the top two sensor terminals.

#### **ECT Sensor Testing:**

**20°C (68°F):** 2.3k ~ 2.6k ohms

**80°C (176°F):** 0.31k ~ 0.33k ohms

Replace the ECT sensor if it is out of specification by more than 10% at any temperature listed.

#### **Bank Angle Sensor**



The bank angle sensor and harness connector are located on the left side of the chassis behind the left fuel tank shroud and coolant reserve tank cover both of which must be removed for access. See the [Bodywork](#) <sup>[2]</sup> topic for more information on either.



The coolant reserve tank must also be removed or repositioned for access to the sensor. See the [Coolant Reserve Tank](#) <sup>[3]</sup> topic for more information.





Free the rubber shroud at the bracket under the ECM, then pull the shroud back for access to components mounted on the bracket.



If desired the bracket can be removed for better access.

Note: In the accompanying photo most of the electrical components on the bracket have been removed for clarity.



Unplug the bank angle connector.

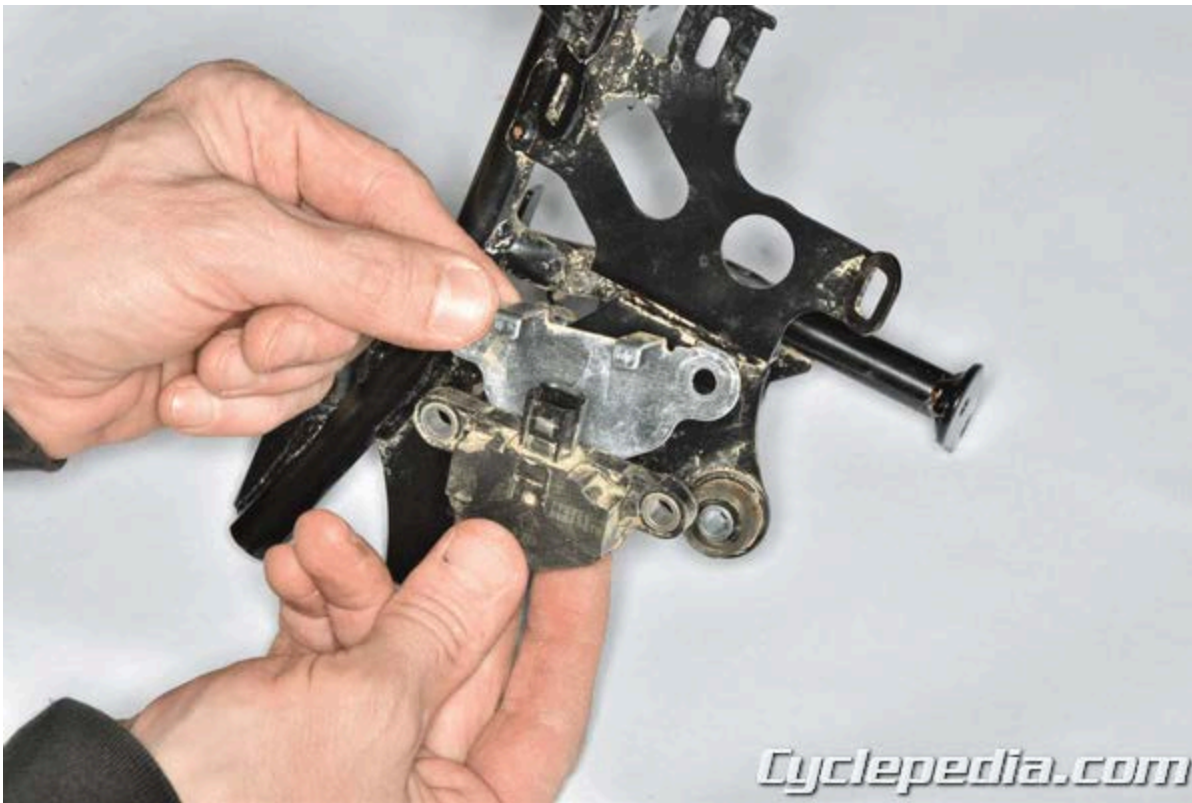


Hold the bolts from turning using a 10 mm wrench and loosen the nuts on the back of the bracket with a 10 mm socket.



Remove the fasteners from the sensor, bracket, and rubber grommets.





Remove the sensor from the bracket.



The sensor is clearly marked "UP," and it is important to mount it that way during installation. Tighten the nuts to specification when the sensor is installed. Also be sure to keep track of the rubber grommet and collars that are installed with the bolts and nuts.

**Bank angle sensor mounting nut:** 9.0 N-m (0.9 kgf-m, 6.6 ft-lb)

## Inspection

The bank angle sensor should kill the engine if it is rotated more than **70° ± 5°** to the left or right.

Remove the bank angle sensor but leave the 2P connector attached.

Place the bank angle sensor in a standard horizontal position.

Turn the ignition switch ON and set engine stop switch to RUN.

Start the engine and allow it idle.

Incline the bank angle sensor **70° ± 5°** to the left or right with the engine idling.

The sensor and system is considered good if the engine stalls when the sensor is tilted.

If the Honda MCS is available the sensor can also be checked using the scan tool. Turn the ignition ON with the stop switch set to run and observe the sensor output on the system while the sensor is upright, then again with the sensor tilted. If the sensor is operating correctly the voltage should decrease when the sensor is tilted and increase again when it is straightened up.

## Throttle Position Sensor

See the [TPS](#) <sup>[4]</sup> topic for more information.

## O2 Sensor



The O2 sensor is mounted to the rear of the header pipe.

**Warning: Do not service the O2 sensor while it is hot.**

Note:

Do not get grease, oil or other materials in the O2 sensor air hole.

Handle the O2 sensor with care. The O2 sensor may be damaged if dropped. Replace it with a new one, if dropped.

Do NOT use an impact wrench on the sensor.



## Replacement

Remove the right fuel tank shroud to access the O2 sensor wiring. See the [Bodywork](#) <sup>[2]</sup> topic for more information.



The O2 sensor connector is found on a stay just inboard of the frame behind the right fuel tank shroud.



Carefully free the connector from the stay.





Then unplug the O2 sensor connector.



Remove the exhaust pipe for access to the sensor. See the [Exhaust System](#) <sup>[5]</sup> topic for more information.





Remove the sensor from the pipe using a 17 mm sensor socket (with a cutout for the sensor wiring) or a suitable wrench (preferably a box or line wrench, whatever fits over the harness). Install the replacement sensor and tighten to specification.

**Special Tool – Snap-On 17 mm Sensor Socket Wrench: FRXM17**

**O2 sensor:** 25 N-m (2.5 kgf-m, 18 ft-lb)

## Vehicle Speed Sensor



The VS sensor is located on the crankcase. At minimum remove the fuel tank shrouds and the EVAP canister assembly for access. See the [Bodywork](#) <sup>[2]</sup> and [Emissions](#) <sup>[6]</sup> topics for more information.

### Inspection

The VS sensor connector is found on the frame crossmember just behind the cylinder head and throttle body (under the air box connector tube).



Locate and check for loose or poor contact of the VS sensor 3P connector.





Unplug the VS sensor 3P connector.

Turn the ignition switch ON and engine stop switch to RUN.

Measure the voltage between the VS sensor 3P connector terminals at the wire harness side.

**CONNECTION:** Black/Red (+) to Green/Black (-)

**STANDARD:** Battery voltage

If battery voltage appears and the sensor is not operational, replace the VS sensor.

If there is no voltage, check the following:

Black/Red wire open circuit

Green/Black wire open circuit

Meter (speedometer)

### **VS Sensor Replacement**

Access the sensor as noted earlier (by removing the fuel tank shrouds and, if equipped, the EVAP canister assembly).

Unplug the VS sensor 3P connector as shown earlier in this section and free the wire from and guides.



Remove the VS sensor bolt with a 10 mm socket.



Remove the sensor and O-ring from the crankcase.

Replace the O-ring with a new item on installation. Apply engine oil to the new O-ring.

Install the VS sensor bolt and tighten it securely with a 10 mm socket.

Connect the VS sensor 3P connector and secure the harness in the guide.

URLs in this post:

[1] Cylinder Head: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/cylinder-head/>

[2] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

[3] Coolant Reserve Tank: <https://www.cyclepedia.com/manuals/online/cpp-323/cooling-system/coolant-reserve-tank/>

[4] TPS: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/tps/>

[5] Exhaust System: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/exhaust-system/>

[6] Emissions: <https://www.cyclepedia.com/manuals/online/cpp-323/fuel-system/emissions/>

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## Switches

**SAFETY FIRST:** Protective gloves and eyewear are recommended at this point.

### Suggested Tools and Supplies

8 mm Socket  
10 mm Socket  
5 mm Hex  
Ratchet  
Torque Wrench  
Meter  
Nitrile Gloves  
Safety Glasses

## Switch Testing

Most switches are easily checked using a multimeter set to read resistance. Continuity tables (that list what connections should have or not have continuity and under what conditions) can be found for the following components in the wiring diagrams:

Ignition switch

Starter switch, Engine stop switch, Hazard switch (Right Handlebar Switch)

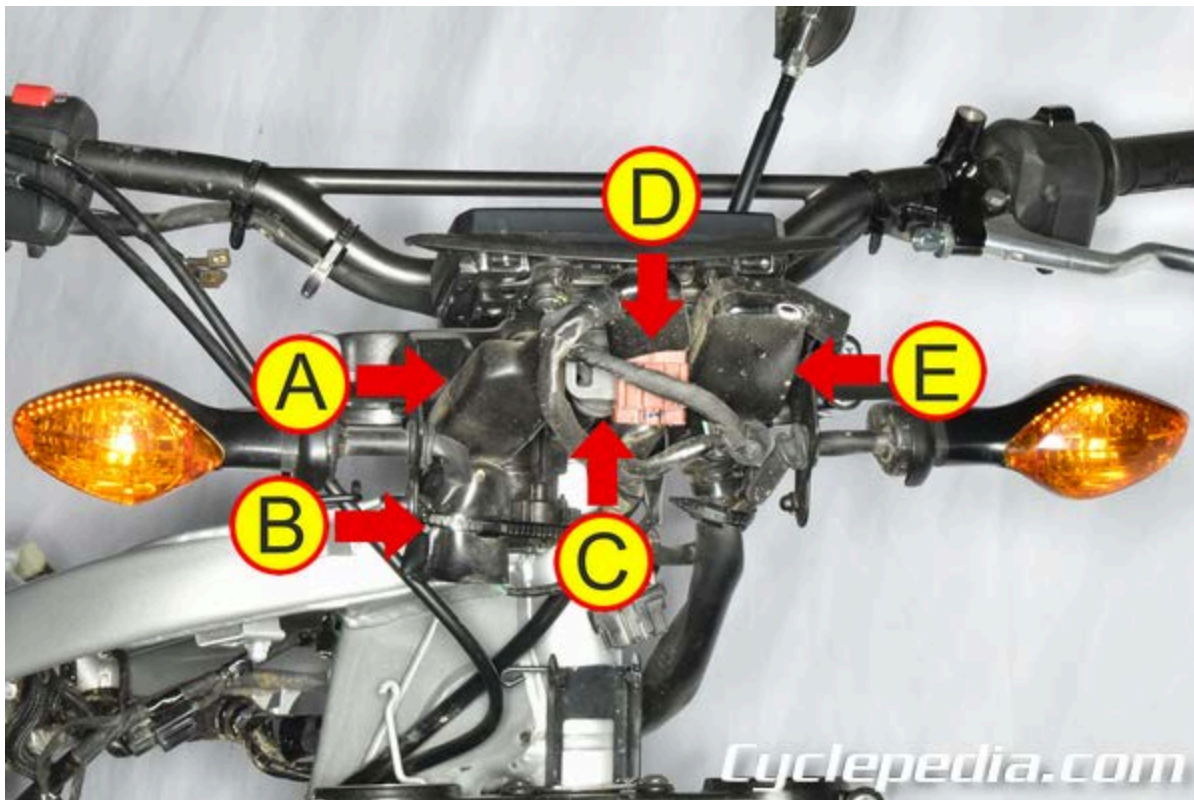
Turn signal switch, Dimmer switch, Horn switch (Left Handlebar Switch)

Rear ABS cancel switch

See the [Wiring Diagrams](#) <sup>[1]</sup> topic for more information.

The continuity conditions of more simple switches (like the clutch, brake, or neutral switches) will be noted in the accompanying procedures.

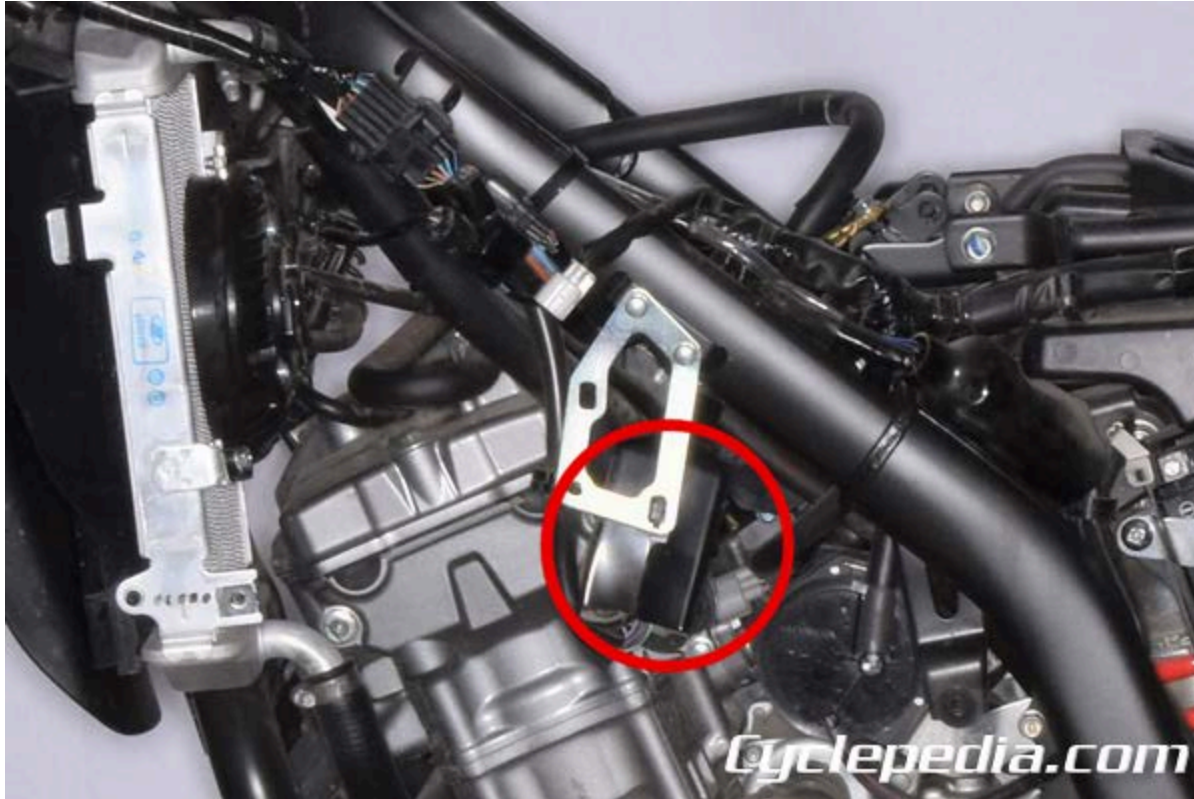
On L/LA models the wiring for most switches can be found under the headlight cowl/visor which must be removed for access. See the [Bodywork](#) <sup>[2]</sup> topic for more information.



For the L/LA models, with the headlight cowl out of the way there is access to the following connectors:

- A:** Right handlebar switch
- B:** Turn signals
- C:** Meter
- D:** Ignition switch
- E:** Left handlebar switch

Access is a little more involved on the LR/LRA models where the connectors are found in different locations.



For LR/LRA models remove the left fuel tank shroud for access to either the Ignition Switch or the Left Handlebar Switch connectors which are found at the bracket shown. See the [Bodywork](#) <sup>[2]</sup> topic for more information.

On LR/LRA models, at minimum, remove the right fuel tank shroud for access to the Right Handlebar Switch connector. See the [Bodywork](#) <sup>[2]</sup> topic for more information.

Set the multimeter to read ohms of resistance to check for switch continuity when testing.

## **Main (Ignition) Switch**





The main switch, or ignition switch is mounted to the upper triple clamp with a pair of one-way bolts (which must be replaced with new ones during installation). If you need to remove the switch, see the [Steering Bearing Service](#) <sup>[3]</sup> topic for more information on accessing the switch. When installing the replacement switch tighten the new fasteners to specification.

**Ignition switch bolt (one-way bolt, replace):** 24 N-m (2.4 kgf-m, 18 ft-lb)

The wiring for the switch is located either behind the headlight cowl (L/LA models) or on the left side of the chassis (LR/LRA models) as noted earlier. The wiring on LR/LRA models is run through a series of clamps/guides and requires some work to free if the switch requires replacement. Also see the [Steering Bearing Service](#) <sup>[3]</sup> topic for more information on freeing the switch wiring on LR/LRA models.



Unplug the ignition switch wiring (L/LA models shown).



Remove the connector from the stay.





Check for continuity between the ignition switch wires following the continuity chart.

# IGNITION SWITCH

	BAT	IG	S
ON			
OFF			
LOCK			



There should be continuity between the Red/White wire and Red wires only when the ignition switch is in the ON position.

There should be continuity between the Red/White and Pink wires only when the ignition is in the OFF or LOCK positions, and only in one direction as there is a diode in the circuit. The switch is considered faulty if there is continuity in both directions or when the switch in ON.

Note: When testing continuity across two terminals when there is a diode in the circuit, check the connections twice, swapping the positive (+) and negative (-) meter leads between the two terminals for the second check.

## Right Handlebar Switch



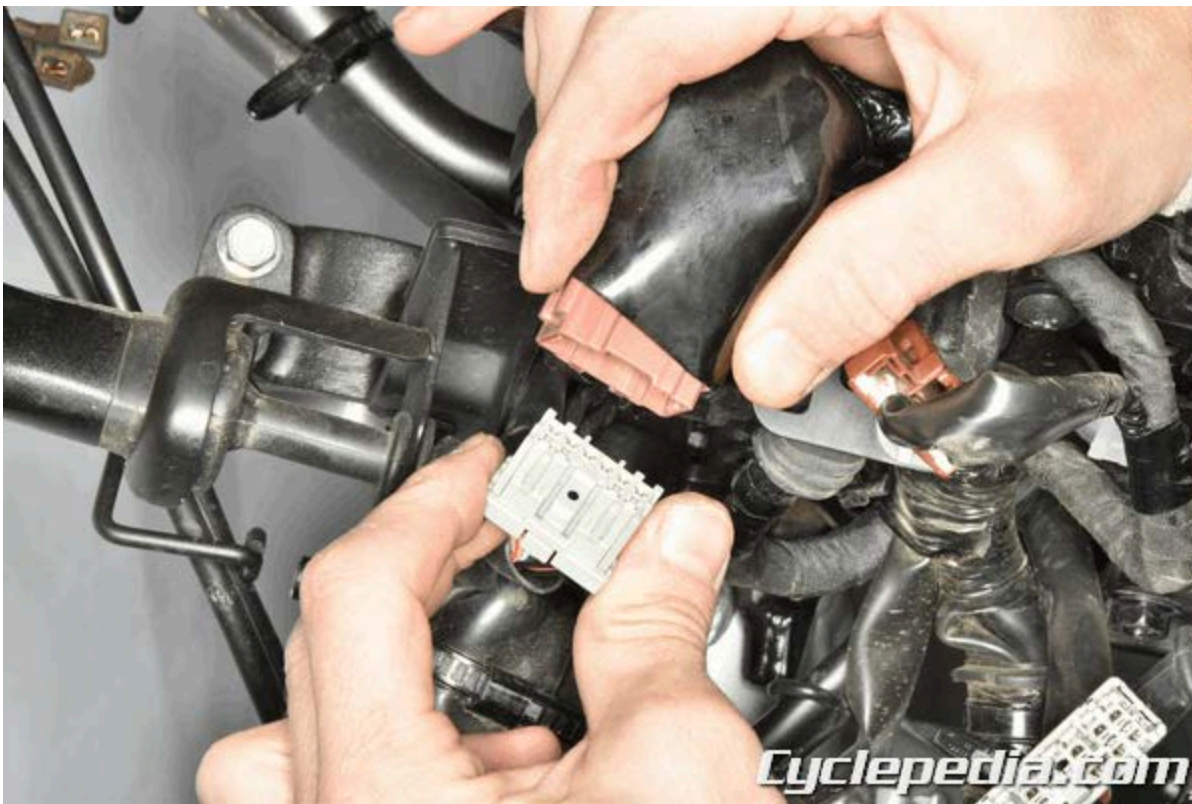
The right handlebar switch contains the engine stop switch, starter button, and hazard switch. In addition the wiring for the brake light switch runs through the same harness connector.

The wiring for the switch is located either behind the headlight cowl (L/LA models) or on the right side of the chassis (LR/LRA models) as noted earlier.

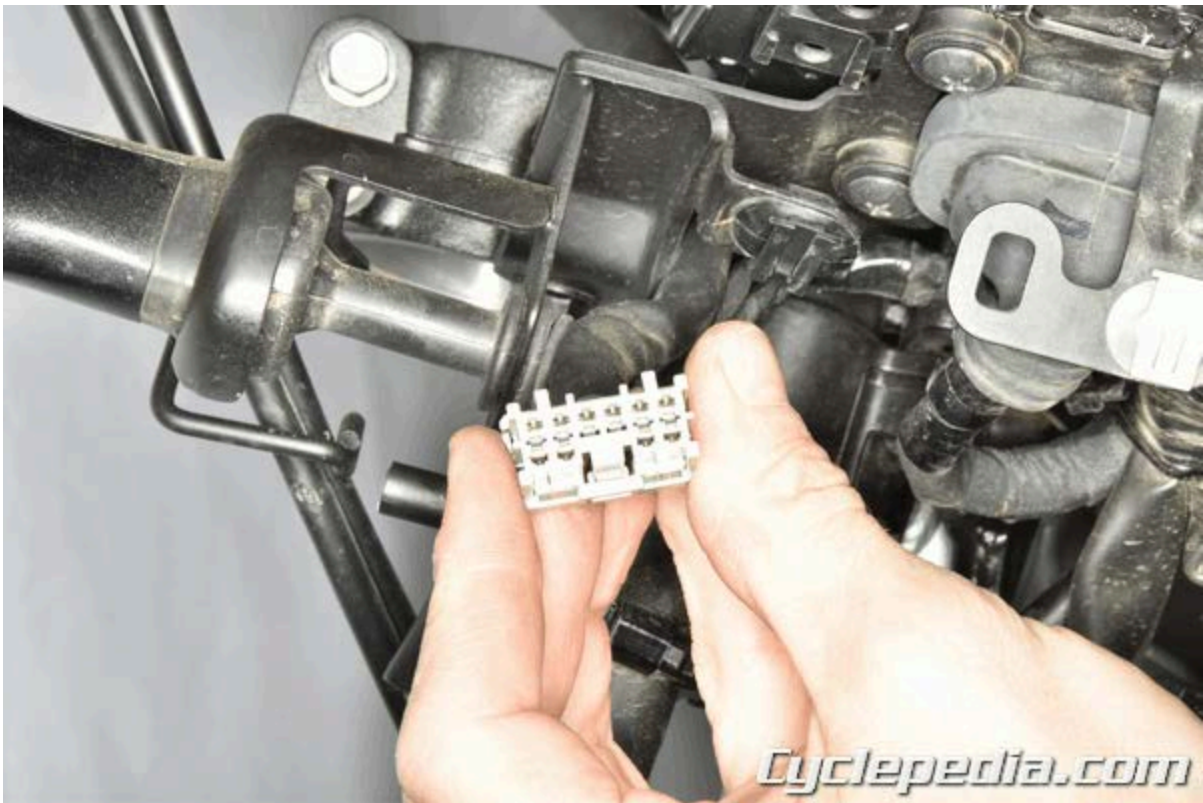




Pull the rubber boot up off the right handlebar switch connector (L/LA models, shown).



Unplug the switch connector.



Check for continuity between the right handlebar switch wires following the continuity charts for the switches in question or the wire terminals as noted here.

Note: The Brake light switch can also be tested from this point if desired, though access to the switch is often easier directly at the switch terminals on the handlebar.

### Starter Switch

## STARTER SWITCH

	IG	ST	BAT	HL
FREE				
PUSH				

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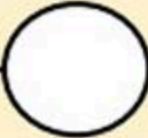
There should be continuity between the Black/Orange wire and Yellow/Red wire only when the starter switch is pressed, and no continuity when released. Conversely, on L/LA models, there should also be no



continuity between the White wire and Blue/White wire only when the starter switch is pressed, and continuity when released.

**Engine Stop Switch**

# ENGINE STOP SWITCH



	BAT	IG
OFF		
RUN		

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There should be continuity between the Black/Yellow wire and Black/Orange wire only when the switch is in the RUN position, and no continuity in the OFF position.

**Hazard Switch**

# HAZARD SWITCH

	BAT	PO	WI	HAZ
OFF				
ON				

**WIN\_PO**

	W	R	L
OFF			
ON			

**NO\_WIN\_PO**

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Check for continuity between the following switch wires only under these conditions based on equipment.

For models w/ WinPo:

Switch in OFF position: Black to White/Red

Switch in ON position: Gray to Red/Blue

For models w/out WinPo:

Switch in OFF position: No continuity

Switch in ON position: Gray to White/Red and Red/Blue

## Front Brake Light Switch

There should be continuity between the Black and Green/Yellow wires only when the switch is activated/the brake lever is held.

To service the switch, see the [Handlebar](#) <sup>[4]</sup> topic.

## Left Handlebar Switch





The left handlebar switch contains the horn, turn signal, and headlight dimmer switch. In addition the wiring harness connector also contains the clutch switch wiring.

The wiring for the switch is located either behind the headlight cowl (L/LA models) or on the left side of the chassis (LR/LRA models) as noted earlier.



Pull the rubber boot up off the left handlebar switch connector (L/LA models shown).





Unplug the switch connector.








Check for continuity between the ignition switch wires following the continuity charts and/or wiring terminals as described here.

Note: The clutch switch can also be tested from this point if desired, though access to the switch is often easier directly at the switch terminals on the handlebar.



## **Turn Signal Switch**



## TURN SIGNAL SWITCH

	W	R	L	P	PR	PL
R						
N						
L						

WIN\_PO

	W	R	L
R			
N			
L			

NO\_WIN\_PO

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Check for continuity between the following switch wires only under these conditions:

Switch in right signal position: Gray to Light Blue, and on models with WinPo, White/Red to Orange/White

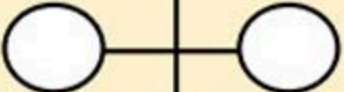

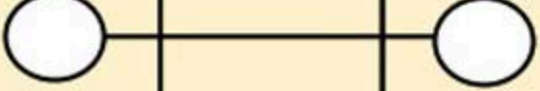
Switch in neutral (center) position (models w/ WinPo): continuity between White/Red, Light Blue/White and Orange/White

Switch in neutral (center) position (models w/out WinPo): there should be no continuity across any terminals

Switch in left signal position: Gray to Orange, and on models with WinPo, White/Red to Light Blue/White

### Dimmer Switch

## DIMMER SWITCH

	HL	LO	HI
LO			
(N)			
HI			

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Check for continuity between the following switch wires only under these conditions depending on the model.

For Standard (L/LA) models:

Switch in lo beam position: Blue/White to White

Switch in neutral (center) position: Blue/White to White and Blue



Switch in hi beam position: Blue/White to Blue

For Rally (LR/LRA) models:

Switch in hi beam position: Green to Blue

### Horn switch

# HORN SWITCH

	BAT	HO
FREE		
PUSH		

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There should be continuity across the Black and Light Green wires only when the switch is pushed and no continuity when released.

### Clutch Switch

There should be continuity across the Green/Red to Green/Orange wires only when the switch is pushed (lever is held) and no continuity when released.

To service the switch, see the [Handlebar](#) <sup>[4]</sup> topic.

## Brake Light Switches

### Front





The front brake light switch is mounted to the underside of the front master cylinder where it can be directly actuated by the lever.



Unplug the front brake light switch connectors.

Touch one meter lead to each front brake light switch terminal. There should be continuity with the front brake lever pulled in, no continuity when it is released.

See the [Front Master Cylinder](#) <sup>[5]</sup> topic for additional information on replacing the brake light switch.

## Rear

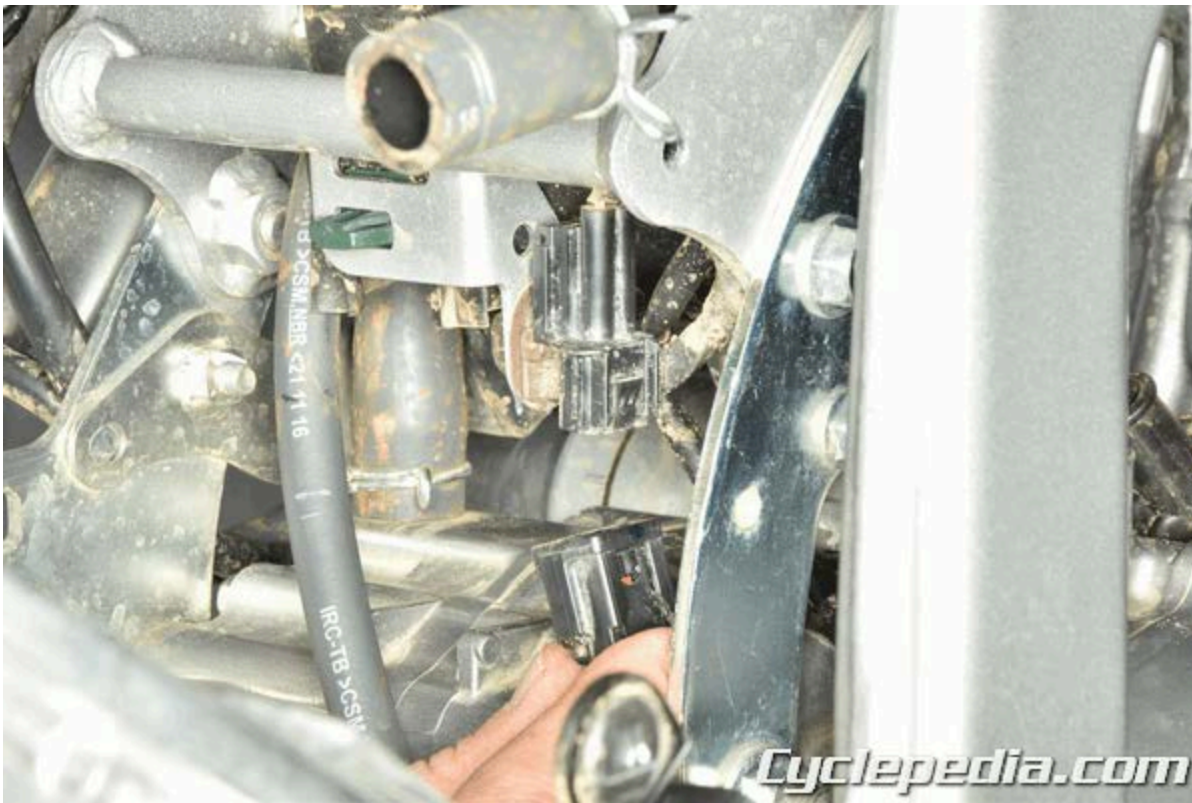


The rear brake light switch is mounted behind the frame (heel) guard on the lower right side of the frame which must be removed for switch access. See the [Bodywork](#) <sup>[2]</sup> topic for more information.



The rear brake light harness connector is found on a frame stay just above the rear of the engine crankcase.





Unplug the switch harness connector for switch testing or replacement.

The switch connector has two wires (both Black on the switch side of the connector, but Black/Orange and Green/Yellow on the harness side).

Check for continuity between the two terminals on the switch side of the wiring. There should be continuity with the rear brake pedal depressed, no continuity when it is released.



The switch is actuated by the rear brake pedal through a spring connecting the two. To remove the switch free the spring, then remove the bracket mounting bolt using a socket.



Remove the switch and mounting bracket for access or replacement as needed.

### **Adjustment**



Turn the knurled rear brake light switch adjustment nut so that the rear brake light switch activates when the brake pedal is used.



If the brake light turns on too late, rotate the switch nut **clockwise** when viewed from above. If the brake light turns on too soon, rotate the switch nut **counterclockwise** when viewed from above.

## Gear Position Switch



Make sure that the neutral indicator light (circle) comes on and the gear position indicator (arrow) shows neutral with the ignition switch ON and transmission is in neutral. Test ride the bike and confirm the gear position indicator shows each gear properly as the bike is operated.



The gear position switch wiring connector is found in a rubber protective boot along the left side of the chassis, just above the engine sprocket cover and right behind the starter (and EVAP canister if so equipped).



To inspect or service the switch pull the connector from the boot and unplug it as shown.



Test the switch through the harness as follows using a meter to check for continuity to ground based on switch/shifter position:



**1st gear:** Brown  
**Neutral:** Light Green/Red  
**2nd gear:** Red/Yellow  
**3rd gear:** Orange  
**4th gear:** Yellow  
**5th gear:** Black  
**6th gear:** Blue



If the switch requires removal the harness must be removed from a guide bracket on the left side of the chassis.



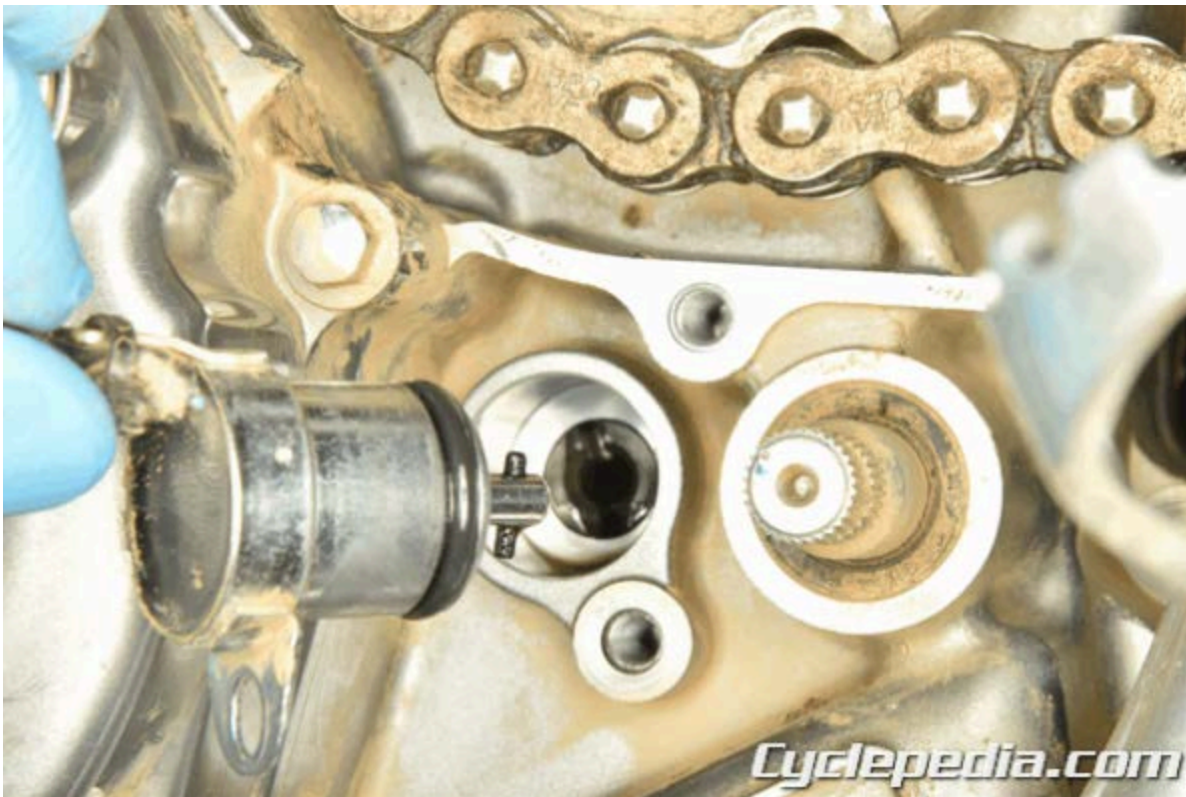
To service the switch remove the engine sprocket cover and drain the engine oil. See the [Chain Guards](#) <sup>[6]</sup> and [Engine Oil](#) <sup>[7]</sup> topics for more information.

Remove the shift pedal for access to the retaining bolt (see the [Gearshift](#) <sup>[8]</sup> topic for more information).



Use a 5 mm hex socket to remove the bolt and free the switch.



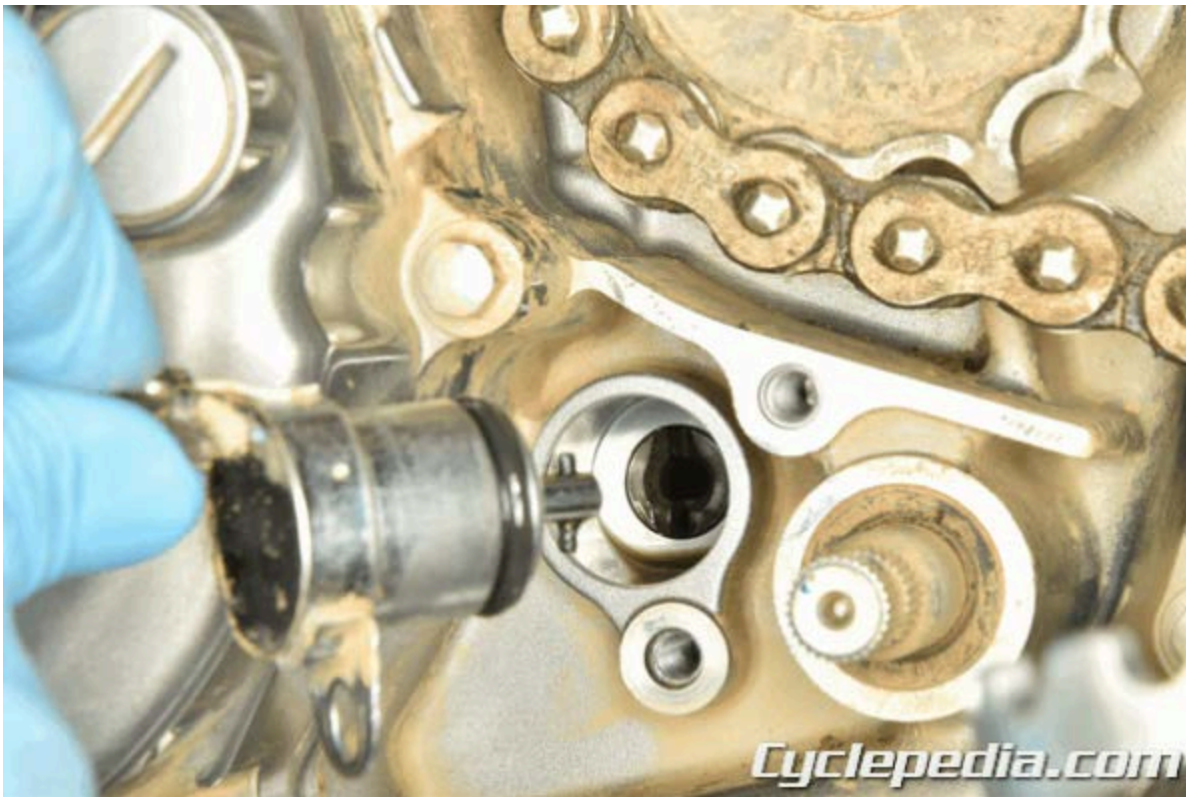


Gently pull the switch from the side of the crankcase.



Remove and discard the old O-ring, replace with a new one coated with engine oil during installation.



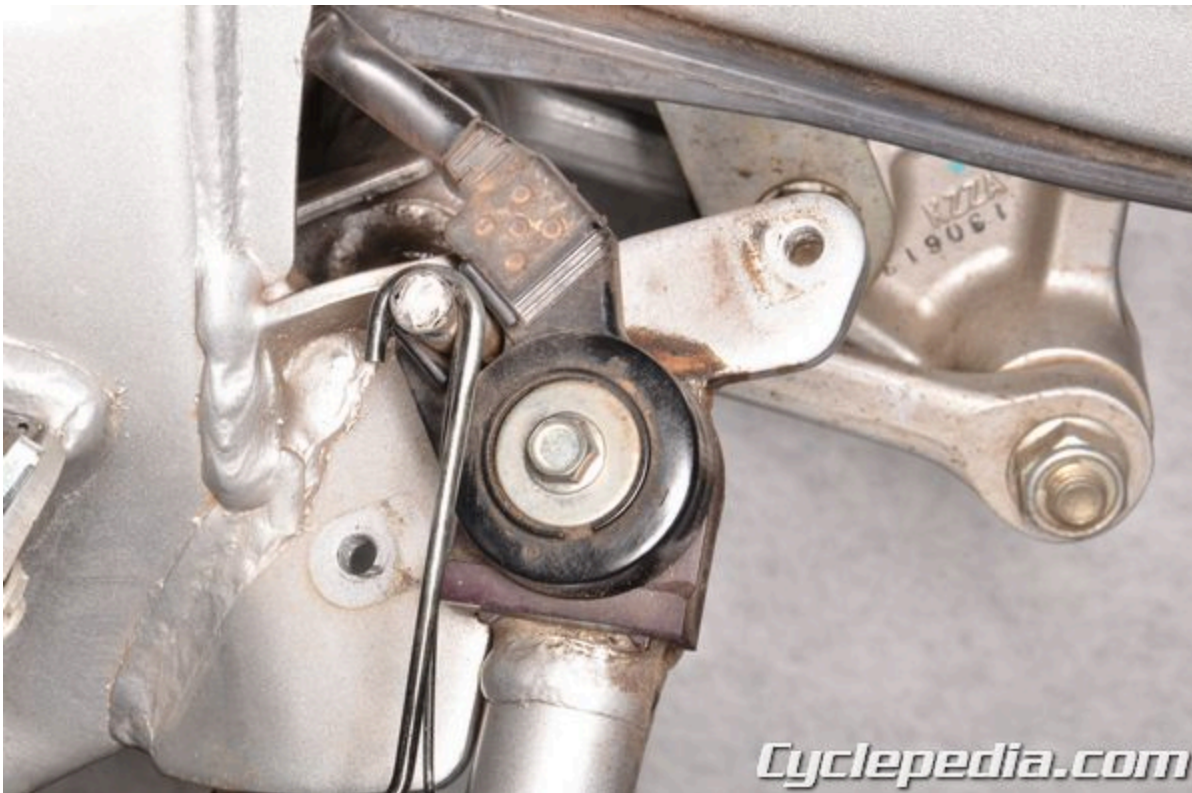


Be sure to align the drive pin in the switch with the slot in the shift drum and install the switch to the case. Tighten the bolt to specification using a socket.

**Gear position switch bolt:** 10 N-m (1.0 kgf-m, 7 ft-lb)

Note: If the transmission is in neutral the pin on the switch should align with the painted mark on the underside of the switch body for proper alignment/installation. Check that the display indicates the correct gear before operating the machine.

## Side Stand Switch





The side stand switch is designed to keep you from riding with the side stand down. If it becomes unplugged, a wire breaks or the switch itself fails, the engine will only run in neutral and will stall as soon as the transmission is placed into gear.



The wiring connector for the side stand switch is located behind the left fuel tank shroud side cover which must be removed for access. See the [Bodywork](#) <sup>[2]</sup> topic for more information.



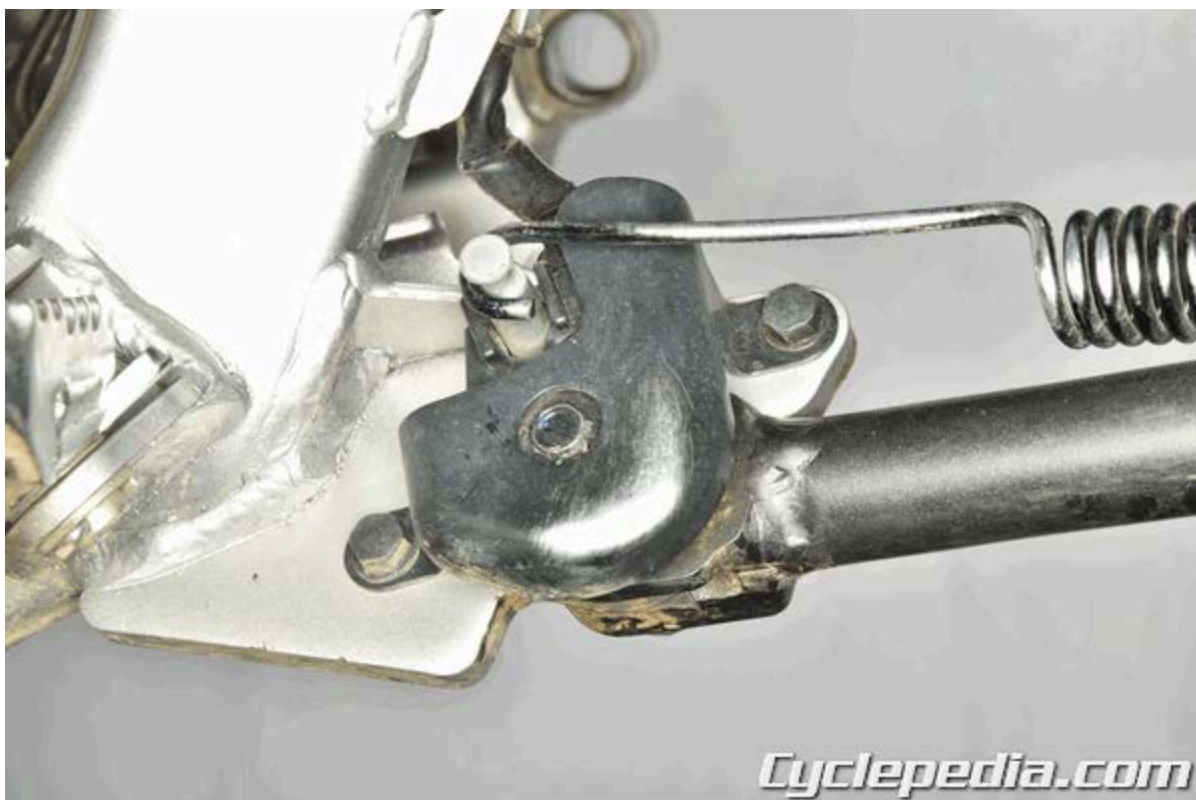
Locate the rubber harness cover just in front and slightly above the battery tray. Pull back the rubber cover to expose the wiring.



Unplug the side stand switch coupler. It has a Green/Orange and Green wires on the harness side

Connect a meter set to read continuity across the two terminals on the switch side of the connector. There should be continuity with the side stand up, no continuity with the side stand down.

If replacement is necessary free the harness wiring down to the switch mounted on the side stand pivot.





Loosen the two bolts that secure the switch cover using an 8 mm socket.



Remove the switch cover.



Remove the side stand switch mounting bolt with a 10 mm socket and free the switch from the stand pivot. Discard the mounting bolt and replace with a new one come installation. Remove the switch from the chassis and replace as needed.



During installation align the switch to the stand by placing the tab on the underside of the switch in the bore on the stand just outside the pivot bolt as shown. Install the switch using a new bolt and tighten to specification with a 10 mm socket. Then properly route and reconnect the wiring.

**Side stand switch bolt (ALOC bolt, replace):** 10 N-m (1.0 kgf-m, 7.0 ft-lb)

## Clutch Switch



Unplug the wiring from the terminals for the clutch switch.



The clutch switch terminals should have continuity when the lever is pulled in, but there should be no continuity when the lever is released.

To service the switch, see the [Handlebar](#) <sup>[4]</sup> topic.

## Rear ABS Cancel Switch



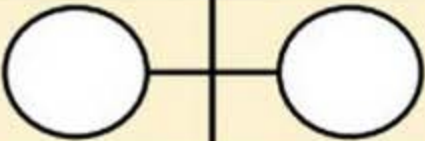
The LA/LRA models are equipped with a rear ABS cancel switch mounted just to the side of the instrument cluster (meter).

If the rear ABS cancel switch and related circuit suffers a fault, the system will reverse back to normal ABS operation. When this occurs the Rear ABS Off light will go OUT, but the ABS indicator light itself will come ON to indicate a fault with the circuit. The irony of course is that this is the one circumstance where the ABS indicator will illuminate but that normal ABS function should still be available. Use caution though until the circuit/system is repaired since any presence of additional ABS faults might render the system inactive anyway.

The switch wiring is mounted in the back of the meter using a single screw. The Headlight Cowl/Visor (LA models) or Windscreen/Headlight Cowl (LRA models) must be removed for access. See the [Bodywork](#) <sup>[2]</sup> topic for more information.

## Inspection

# REAR ABS CANCEL SWITCH

	ABS	GND
FREE		
PUSH		

*cyclepedia.com*

Unplug the switch 2P (Black) connector (it has Green and Green/Black wires on the harness side). There should be continuity across the Green and Green/Black wires only when the switch is pushed and no continuity when released.

URLs in this post:

[1] Wiring Diagrams: <https://www.cyclepedia.com/manuals/online/cpp-323/electrical-systems/wiring-diagrams/>

[2] Bodywork: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/bodywork/>

[3] Steering Bearing Service: <https://www.cyclepedia.com/manuals/online/cpp-323/steering-3/removal/>

[4] Handlebar: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/handlebars/>

[5] Front Master Cylinder: <https://www.cyclepedia.com/manuals/online/cpp-323/front-brake/front-brake-master-cylinder/>

[6] Chain Guards: <https://www.cyclepedia.com/manuals/online/cpp-323/external-components/chain-guards/>

[7] Engine Oil: <https://www.cyclepedia.com/manuals/online/cpp-323/periodic-maintenance/engine-oil/>

[8] Gearshift: <https://www.cyclepedia.com/manuals/online/cpp-323/engine/gearshift/>

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# Honda CRF300LR/LRA/L/LA-M Wiring Diagram

